2015-1136

United States Court of Appeals for the Federal Circuit

GENERAL ELECTRIC COMPANY,

Appellant,

v.

VIBRANT MEDIA, INCORPORATED,

Appellee.

On Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in IPR2013-00172

OPENING BRIEF FOR APPELANT

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February 18, 2015

CERTIFICATE OF INTEREST

Counsel for appellant General Electric Company certifies the following:

1. The full name of every party or amicus represented by me is: General Electric Company.

2. The real party in interest is the same as the party represented.

3. There are no parent corporations or publicly held companies that own 10 percent or more of the stock of the party represented by me.

4. The names of all law firms and the partners or associates that appeared for the party now represented by me in the agency or are expected to appear in this court are:

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STATEMENT OF RELATED CASES

The pending appeal is related to its companion case, *General Electric Company v. Vibrant Media Inc.*, Federal Circuit Appeal No. 15-1015. The patents in the pending Federal Circuit appeals are also the subject of a stayed litigation entitled *General Electric Co. v. Vibrant Media, Inc.*, Case No. 1:12-cv-00526-LPS (D. Del.), and were the subject of a now settled litigation entitled *General Electric Co. v. Kontera Technologies, Inc.*, Case No. 1:12-cv- 00525-LPS (D. Del.).

Besides the cases set forth above, no other appeal in or from the same civil action or proceeding in the lower court or body was previously before this or any other appellate court. Further, besides the cases set forth above, no other case is pending in this or any other court that will directly affect or be directly affected by this Court's decision in the pending appeal.

I. STATEMENT OF JURISDICTION

The Patent Trial and Appeal Board (PTAB) had jurisdiction over *Inter Partes* Review (IPR) proceeding IPR2013-00172 under 35 U.S.C. § 314, and issued its final written decision on June 26, 2014. A42. Appellant, General Electric Company, timely filed its notice of appeal on August 26, 2014. This Court has jurisdiction over the appeal under 35 U.S.C. § 319 and 28 U.S.C. § 1295(a)(4)(A).

II. STATEMENT OF THE ISSUES

1. Whether the PTAB erred in finding claims 1-5 and 7-11 unpatentable under 35 U.S.C. § 103 in light of van Hoff and Anthony.

2. Whether the PTAB erred in finding claims 6 and 12 unpatentable under 35 U.S.C. § 103 in light of van Hoff, Anthony Kleinberg and Borden.

3. Whether the PTAB erred in finding claim 9 unpatentable under 35 U.S.C. § 103 in light of van Hoff, Anthony and Logue.

4. Whether the PTAB erred in denying Appellant's Motion to Exclude Evidence as it relates to the Declaration of Dr. Hellman.

III. STATEMENT OF THE CASE

The present appeal relates to U.S. Patent No. 6,092,074 ("the '074 patent"), issued on July 18, 2000. A121. Petitioner, Vibrant Media Inc. ("Vibrant"), filed its petition for *Inter Partes* Review for this case (and for IPR2013-00170, Fed. Cir. Appeal No. 15-1170) on February 27, 2013 seeking the invalidity of all claims in the '074 patent. The PTAB instituted the IPR proceedings on July 29, 2013. A2117. Ultimately, the PTAB issued its final written decision on June 26, 2014, finding all claims of the '074 patent invalid (hereinafter "Decision"). A42.

In this appeal, Patent Owner appeals the finding of invalidity under 35 U.S.C. § 103 of claims 1-12 including the denial of Appellant's Motion to Exclude Evidence as it relates to the Declaration of Dr. Hellman.

IV. STATEMENT OF THE FACTS

The '074 patent generally relates to "a system which allows a Web developer to automatically enter hypertext links into a computer file such as a news article .... The system ... also provide[s] simple and central control over the destination of previously static links ... [and] allow[s] updating of the links without requiring further processing of the computer file." Col. 3, lines 35-42. A130. Col. 11, lines 22-25, further describes that "The central server 450 maintains a master database of specific words or phrases (e.g., character strings), as well as a

database of corresponding destination addresses, such as URLs." A134. "[I]f a match is found between the current character string of the article to be annotated 405 and the character strings in the annotation database 535, the Intelligent Annotator™ 520 inserts an anchor code into the article to be annotated 405 to associate the matched character string with the corresponding destination address in the destination and expiration database 540." Col. 19, lines 8-14. A138. "The character strings in the annotation database 535 are termed 'linkable character strings.'" Col. 19, lines 17-18. A138.

One set of exemplary uses of the invention is described between col. 11, lines 41-54. A134. In business-related uses of the invention, "the character strings may be names of companies, including the formal name, nickname, and stock ticker symbol. To illustrate, the character strings 'International Business Machines' and 'IBM' may have a corresponding destination address of 'www.ibm.com'". Col. 11, lines 40-45. A134. "For sports applications, the central server 450 may maintain a database of sports teams, cities, and players, as well as corresponding destination addresses. ... To illustrate, the character strings 'National Football League' and 'NFL' may have a corresponding destination address of 'www.nfl.com'". Col. 11, lines 40-45. A134.

The system can further enable the same character string to be included in the database multiple times to provide preferred or subject-specific destination

addresses to be used when annotating a document. "The system also provide[s] pre-assigned preferred destination addresses for specific character strings." Col. 3, lines 42-44. A130. The last paragraph of col. 11 discloses using such a configuration in the travel industry:

> The central server 450 may include a master annotation database which stores character strings which are associated with preferred destination addresses. One example is the use of a master annotation database for travel industry applications, where the master annotation database contains a listing of travel destinations, airlines, and so forth, which have corresponding preferred destination addresses in a destination address of the central server 450. Since several destination addresses may be suitable for a particular character string, one or more particular destination addresses may be accorded a preferred status....

A134.

The last full paragraph of col. 19 further describes using codes for major classes to "prevent inappropriate links for a character string which is used in different contexts. For example, the character string 'New York' will have a different context depending on whether it is referring to the major class of tourism

(*e.g.*, New York Bureau of Tourism) or to the major class of sports (*e.g.*, New York Yankees)." A138.

The table of col. 18 (A137) (reproduced below) shows a number of exemplary character strings and exemplary major and minor class codes where major class codes include 100 for business and 200 for sports which minor class codes include 1 for a home page, 2 for a stock quote, 3 for a news story and 4 for team scores.

Character string	Major Class	Minor Class
Class (es)		
Compaq	100	2, 3
IBM	100	1, 2, 3
International Business Machines	100	1, 2, 3
Merck	100	2, 3
Micron	100	2, 3
Viasat	100	1, 2, 3
NFL	200	1
National Football League	200	1
San Diego Padres	200	1, 3, 4

Utilizing a database including the information from such a table, the system can control which hyperlinks are provided for a linkable character string (*e.g.*, IBM) in a document being processed. For example, as described in col. 20, lines 8-13, "if the content server administrator knows that a particular article to be annotated 405 relates to business, the content server administrator should select a major class code of '100' so that matching linkable character strings with other major class codes are bypassed." A138. Similarly, "assume a major class of '200'

for 'sports' is selected. In this case, even though the character string 'IBM' has a match in the annotation database 535, no anchor code will be provided for 'IBM' since the major class (e.g., '100' for IBM) does not match." Col. 20, lines 20-24. A138.

V. SUMMARY OF THE ARGUMENT

The PTAB improperly found that U.S. Patent No. 5,822,539 ("van Hoff") disclosed a plurality of destination addresses for a single linkable character string by reading into van Hoff elements not actually disclosed therein. The PTAB further erred by finding that U.S. Patent No. 5,815,830 ("Anthony") disclosed class codes by ignoring how the topic/reference names are used in Anthony. The PTAB further ignored evidence of commercial success that shows that the invention was non-obvious. Lastly, the PTAB erred by not excluding belatedly presented evidence by the Petitioner.

VI. ARGUMENT

A. Standard of Review

Determination of "obviousness under 35 U.S.C. § 103 is a legal conclusion based on underlying facts." *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1256 (Fed. Cir. 2007). The Federal Circuit "reviews 'the [PTAB's] ultimate

determination of obviousness de novo.' ... However, the Board's underlying findings of fact receive review for substantial evidence." *Id.* (internal citations omitted.)

B. The Teachings of van Hoff

The teachings of van Hoff have been misunderstood by the PTAB, resulting in a misapplication of those teachings to the challenged claims and a finding of obviousness of claims 1-12. As a preliminary matter, the PTAB – and Petitioner's expert upon which the PTAB relies – has ignored the distinction between an annotation in an annotated document and an annotation in the annotation directory. In its Decision, the PTAB concluded that "van Hoff clearly discloses that an annotation for a matched term includes *a plurality of hypertext links*." A64. In support of that conclusion, the Decision cited van Hoff, col. 8, lines 49-54, (A799) which states:

> The *annotation including hypertext links* may be provided in a hierarchical format. For example, when a term in the document satisfies the match pattern in the annotation directory, the link may reflect a *hierarchical cross-reference list in order of increasing specificity such as: "medical", "oncology", "melanoma", "treatment", and "radiation"*.

A64. (Emphasis in the original Decision.) However, the cited section does not mean that the *annotation directory* contains a "plurality of hypertext links" for the same match pattern -- rather, only that an annotation in an annotated document includes hypertext links. That is, when the system of van Hoff adds a hyperlink for a match pattern to a document being annotated, the document may already have had hyperlinks in the document associated with that match pattern.

While the PTAB expressly held that it was "not persuaded by GE's argument that 'each linkable character string is only associated with a single portion of the hierarchy'" (A64), by only partially quoting from the Patent Owner's response at A2198, the PTAB has highlighted the misapplication of van Hoff. Patent Owner argued that "each linkable character string is only associated with a single portion of the hierarchy such that each linkable character string *only appears once in the database and with at most one relevance indicator*." A2198 (emphasis added). That is, even if an annotation has more than one hypertext link, there is no evidence to support the assertion that the *annotation directory* of van Hoff includes more than one hypertext link per matched text.

In fact, van Hoff discloses that for each linkable character string that exists in the to-be-annotated document that already has a hypertext link associated therewith, the annotation server of van Hoff will add an additional hypertext link with lower relevance during the annotation process. More specifically, van Hoff

states, "In one embodiment of the invention, any hypertext links present in the document at the time of the request will be allocated a higher relevance indicator than hypertext links added after the user's request and annotation." Col. 8, lines 45-48. A799. Similarly, in the paragraph crossing columns 8 and 9, van Hoff states "As described *supra*, the annotations added to a document may optionally include a relevance information field 196 that provides information about the annotation, such as whether the annotation was present in the original document as requested by the client 102 (high relevance), or whether the annotation was added by the annotation proxy server 118." A799-800. Thus, there are hyperlinks associated with annotations that were part of the original document and not part of the annotation directory.

The decision further found that "As Dr. Hellman testifies, the cited portion of van Hoff describes that 'a single match pattern in the annotation directory *can be* associated with a number of topics of different specificity arranged in a hierarchy.'" A64. However, as Dr. Hellman himself admitted on cross-examination (A1986-A1989), the discussion of the hierarchy does not *inherently* mean that the same word appears in the annotation directory with multiple relevance indicators (and therefore hypertext links). *See* A1989, lines 2-16. Indeed, as described in Observation #5 in the Motions for Observations (A2226-2227), Dr. Hellman testified:

> Q. You could build a system that has only one relevance indicator per linkable character string and the words could still be used to reflect a hierarchical cross-reference list in order of increasing specificity; right?
>
> ... I'm asking could such a system be physically built.
>
> A. Systems like that could be physically built, yes.

A1988-A1989.

In other words, "each linkable character string is only associated with a single portion of the hierarchy such that each linkable character string only appears once in the database and with at most one relevance indicator." A2198.

C. The Teachings of Anthony

The PTAB held that "Anthony discloses a computer system and method for generating hyperlinks automatically in a text document, to facilitate cross-referencing documents and to allow fast and easy access to relevant information. ... Anthony describes a system for creating associations between links and data, referred to as 'Auto_Hyperlinking™.' ... The system finds a word or phrase in a text document that matches a topic name, and then automatically hyperlinks the word or phrase to the topic." (A61-A62 (citing the '830 patent (A803), Abs, 1:6-8, 1:35-40, 2:34-43, 5:4-11) (internal citations omitted).) The PTAB's Decision

further states "Anthony specifically states that a reference name 'is a unique, meaningful name which indicates the subject matter of the data portion to which it refers,' and 'may be a word, a phrase, or other string indicative of the topic of the data portion.'" A65 (citing the '830 patent, 4:10-20. A810). Based on that understanding, the PTAB found that "Anthony's topic or reference names fall within the scope of the claim term 'class codes.'" *Id.*

By reasoning that "The system finds a word or phrase in a text document that matches a topic name, and then automatically hyperlinks the word or phrase to the topic," the PTAB admits that the topic/reference names of Anthony are "linkable character strings" (as opposed to "class codes"). The topic/reference names in Anthony are used to link to corresponding content. However, despite acknowledging that the topic names are linkable character strings, the PTAB ignores this fact to then entirely recast the topic names in Anthony as class codes.

In fact, in order for the PTAB to find that the topic names are "class codes," the PTAB has to ignore the testimony of Dr. Hellman, upon which the PTAB relies. As described in Observation #6 in Patent Owner's Motion for Observations (A2227-A2228), Dr. Hellman testified that in the context of the linkable character strings, such as "Earth," in Anthony, the system does not teach class codes as "a class code doesn't really do anything for you because it -- there's only one entry." (A1912, lines 11-24.) Dr. Hellman further testified the linkable character string

"Earth" is "not actually a class code" insofar as "[i]t's not used the way [the patent] uses 'business' and 'sports'" as class codes. (A1914, lines 12-16.) Dr. Hellman also testified that "In the example, there are only ten articles or ten topics. And if you're going to do something with ten topics, you don't really need the class codes to distinguish – to control the number of links." (A1917, lines 21-25.) Dr. Hellman similarly testified that "certainly Anthony does not call out class codes the way that Rodkin does." (A1918, lines 7-12.)

In fact, the PTAB's conclusion that the topic names in Anthony are not used as linkable character strings, but rather as "class codes", has removed from Anthony the lynchpin of how Anthony operates. As discussed *supra*, the Decision found that "[t]he [Anthony] system finds a word or phrase in a text document that matches a topic name, and then automatically hyperlinks the word or phrase to the topic." (A62.) However, if topic names are no longer linkable character strings, then there is nothing for the system to find and to link to. This modification of using the topic names as class codes, rather than linkable character strings, would render Anthony unsatisfactory for its intended purpose of being able to perform automatic hyperlinking -- again, showing that the proposed combination is nonobvious. *See In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984).

Dr. Hellman's testimony on the combination of van Hoff and Anthony is also inconsistent and unreliable. Initially, with respect to class codes, Dr. Hellman,

in paragraphs 59 and 60, relied upon the "linguistic rules" of Anthony to support his conclusion of obviousness. A2541-A2542. He states that "[s]ince Anthony teaches that linguistic rules can be used to associate a character string with a topic name, it would have been obvious to one of ordinary skill in the art that the same character string may be associated with one or more other topic names via some of the linguistic rules." (A2542, paragraph 60.) On cross-examination, however, Dr. Hellman admitted that in Anthony the linguistic rules worked the ***opposite*** way in that plural different linkable character strings can be associated to the same text (or destination address). (See A1473-1474, 33:21-34:4 where Dr. Hellman admits that "moons of Jupiter" and "Jupiter's moons" are both linkable character strings, and A1485, 45:11-16 where he admits that those linkable character strings would refer to the same data portions 700 in the dataset of Anthony.) Accordingly, Anthony teaches the ***opposite*** of linking the same linkable character string to multiple destination addresses, each with their own class code, as claimed. Thus, Dr. Hellman's testimony is unreliable, and he is proposing a change in the principle of operation of Anthony.

D. Portions of Dr. Hellman's Rebuttal Declaration Should Have Been Excluded

In denying Patent Owner's Motion to Exclude as it relates to belatedly raised opinions in Dr. Hellman's declaration, the PTAB held that "A motion to exclude is not a mechanism to argue that a reply contains new arguments or relies on evidence necessary to make out a prima facie case." A82. Instead, the PTAB held that "Whether a reply contains arguments or evidence that are outside the scope of a proper reply under 37 C.F.R. § 42.23(b) is left to our determination. Therefore, GE's argument that Dr. Hellman's rebuttal declaration filed in support of Vibrant Media's reply is untimely is improper." *Id.* However, no other mechanism exists in an IPR/CBM proceeding to raise such an issue. The Motions for Observations are not proper mechanisms to exclude the prejudicial evidence as asking questions of a reply witness during cross-examination about belated opinions only provides even further opportunity for a Petitioner to provide even more belated opinions. How then, if not through a Motion to Exclude, is the Patent Owner supposed to raise an objection? In fact, by denying Patent Owner's the right to raise the issue of untimely opinions in Motions to Exclude, the PTAB actually runs the risk of encouraging Petitioner's to save arguments for their reply knowing that there is no effective mechanism to object to the belated opinions. Furthermore, by deciding

the timeliness of arguments in Motions to Exclude, Patent Owners, as here, will be provided a mechanism for review of the timeliness of arguments on appeal.

In the present case, Dr. Hellman testified on cross-examination of his first declaration that the standard of proof he used was in his declaration when he stated that the "understanding that I used in preparing this declaration was the standard that I -- that was included in this declaration." A1456, lines 15-19. That is, he used no standard at all as none is disclosed in his declaration, and his declaration should therefore have been afforded little or no weight, as required by 37 C.F.R. 42.65 ("Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight."). However, in paragraph 4 of his Supplemental Declaration he sought to belatedly introduce evidence that he used a different standard. Any such argument should have accompanied the Petitioner's Petition as part of its attempt to make a prima facie case of obviousness. Petitioner did not do so, and Petitioner should not be able to belatedly "patch" its arguments, especially in light of contradictory testimony. Dr. Hellman's testimony in paragraph 4 therefore should have been excluded.

Patent Owner also sought (A2234-A2237) to have the majority of paragraph 28 and all of paragraph 30 (A2669-A2670) excluded. Those portions relate to the rejection of claims 6 and 12 and again are belated opinions that seek to patch holes in Petitioner's argument about the combination of references applied against those

claims. Dr. Hellman made similar attempts to patch his testimony in paragraphs 10, 13, 14, 15, 18 and 20. A2235-A2237 (citing A2651-2671). By presenting the opinions therein only in with the Reply Brief, Patent Owner was prejudiced by being deprived of the opportunity to provide rebuttal evidence through Patent Owner's expert. Thus, those portions of the declaration should also have been excluded.

E. The Unsupported Motivation to Combine van Hoff and Anthony

The rejections of claims 1-12 are all based upon as assertion that one of ordinary skill in the art would have combined van Hoff and Anthony in the manner alleged by Petitioner and supported by Petitioner's expert, Dr. Hellman. However, Dr. Hellman's declaration does not disclose the evidentiary standard that he utilized in arriving at his conclusions, and his opinions on what one of ordinary skill in the art would have done should be afforded little or no weight as his declaration fails to assert whether he applied the proper evidentiary standard. 37 C.F.R. 42.65 ("Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.") The PTAB held that "we do not agree with GE that 35 U.S.C. § 316(e) requires an expert declaration to recite or apply the 'preponderance of the evidence' standard expressly in order for the expert testimony to be accorded weight." A83.

However, if the declaration does not recite, as required by 37 C.F.R. 42.65, what standard of evidence the declarant used (so that a reviewing court knows what standard was applied), the declaration can be afforded little or no weight as it is unknown if the opinions recited therein were reached using, for example, substantial evidence instead of a preponderance of the evidence. The fact that the declarant believes that some modicum of evidence supports the declarant's opinion does not mean that the declarant believes a legally sufficient amount supports the opinion. Moreover, in his deposition, Dr. Hellman admitted "The understanding that I used in preparing this declaration was the standard that I -- that was included in this declaration." A1456, 16:15-19.) That is, he used no standard at all as none is disclosed in his declaration.

The PTAB further held that "it is within our discretion to assign the appropriate weight to be accorded to evidence based on whether the expert testimony discloses the underlying facts or data on which the opinion is based," (A83), but the PTAB did not articulate how it exercised that "discretion" in light of the objective failure of a declarant whose testimony is relied upon to state the standard of evidence used. As such, given that the PTAB has indeed relied upon the declaration, the PTAB's reliance on the declaration is arbitrary and capricious as no known standard was applied as the basis of the opinions relied upon by the PTAB. Furthermore, as described *supra* with reference to Patent Owner's Motion

to Exclude, Vibrant Media cannot belatedly attempt to supplement Dr. Hellman's original declaration by asserting in his Supplemental Declaration what the standard of evidence allegedly was in his original declaration. The belated admission of such an assertion is contrary to due process and prejudicial to Patent Owner who did not have an opportunity to allow its expert to opine on the belated evidence.

Furthermore, as shown in Patent Owner's Response to the Petition, the combination of Anthony and van Hoff would not be appropriate. Dr. Hellman readily agreed that van Hoff already provided pattern matching that was at least as good, if not better, than Anthony. *See* A1503, 63:12-17. Anthony's alleged "topic names" also correspond to linkable character strings such that combining van Hoff with Anthony would be cumulative and unnecessary. *See* A1473, 33:17-20; and A1552, ¶22. Thus, there is no evidence to support a finding that one of ordinary skill in the art would have combined van Hoff and Anthony at all, let alone in the manner alleged in the Petition.

The Decision found that such an "argument incorrectly assumes that Vibrant Media's proposed combination is to solve merely the problem of inserting destination addresses in documents automatically" and held that "the combination of van Hoff and Anthony automatically would have provided destination addresses that are also relevant to the content in the documents." A70. However, such reasoning ignores that van Hoff and Anthony do not need to be combined "in the

manner alleged in the Petition" or the Decision to achieve the result of providing destination addresses that are also relevant to the content in the documents. The pattern matches of van Hoff (acting as linkable character strings) need only be associated with "destination addresses that are also relevant to the content in the documents" which the Decision has already alleged van Hoff alone can do with its existing pattern matching, cross-reference sources and relevance indicators. A58. Thus, there is no evidence to support a finding that one of ordinary skill in the art would have combined van Hoff and Anthony in the manner alleged in the Petition and Decision, even if van Hoff and Anthony were combined.

F. Claims 1-12 Are Nonobvious as the Combination Is Unsupported

The rejection of claims 1-12 all are based on a combination of van Hoff and Anthony. As discussed *supra*, the motivation for their combination is not supported by a preponderance of the evidence, and the finding of invalidity of those claims should be reversed.

G. Claims 1, 2, 7 and 8 Are Separately Patentable

Claim 1 recites "the matching linkable character string has a plurality of class codes associated therewith; said destination database comprises a plurality of destination addresses corresponding to said plurality of class

codes of the matching linkable character string." Claim 7 also recites "the matching linkable character string has a plurality of class codes associated therewith; and said destination database comprises a plurality of destination addresses corresponding to said plurality of class codes of the matching linkable character string." Claims 2 and 8 depend from claims 1 and 7, respectively.

As described *supra*, the PTAB's decision (A64) relied upon van Hoff, col. 8, lines 49-54, which states:

> The *annotation including hypertext links* may be provided in a hierarchical format. For example, when a term in the document satisfies the match pattern in the annotation directory, ***the*** link may reflect a hierarchical cross-reference list in order of increasing specificity such as: "medical", "oncology", "melanoma", "treatment", and "radiation".

A799. This does not, however, mean that the ***annotation directory*** comprises a plurality of class codes that are associated with said plurality of linkable character strings such that the matching linkable character string has a plurality of class codes associated therewith. Instead, each linkable character string is only associated with a single portion of the hierarchy such that each linkable character string has at most only one database entry and one relevance indicator. In fact, the

quoted passage does not state where the hypertext links came from at all or whether they came from the same place. Indeed, col. 8, lines 44-47, which immediately preceded the PTAB's citation, expressly states "any hypertext links present in the document at the time of the request will be allocated a higher relevance indicator than hypertext links added after the user's request and annotation." A799. Thus, van Hoff does not teach "the matching linkable character string has a plurality of class codes associated therewith" as claimed.

Moreover, the "topic names" of Anthony are not class codes but linkable character strings, as confirmed by Dr. Hellman, upon whom the PTAB relies. A1912, lines 11-24; A1914, lines 12-16; A1913, lines 21-25; and A1918, lines 7-12. Importantly, this is because, as Dr. Hellman testified "a class code doesn't really do anything for you [in Anthony] because it -- there's only one entry." A1912, lines 11-24.

Even if the "topic names" of Anthony were "class codes," which they are not, Anthony still does not teach that "the matching linkable character string has a plurality of class codes associated therewith" – it teaches the opposite. Dr. Hellman admitted that in Anthony the linguistic rules worked the ***opposite*** way in that plural different linkable character strings can be associated to the same text (or destination address). *See* A1473, line 21 - A1474, line 4 where Dr. Hellman admits that "moons of Jupiter" and "Jupiter's moons" are both linkable character

strings, and A1485, lines 11-16 where he admits that those linkable character strings would refer to the same data portions 700 in the dataset of Anthony.

Moreover, given the teachings of van Hoff and Anthony, there is no admissible evidence to support the Decision's combination of van Hoff and Anthony in a fashion that does not use Anthony's topic names as pattern matches in van Hoff. So, even if van Hoff and Anthony were combined, the combination does not teach that "the matching linkable character string has a plurality of class codes associated therewith." Rather, the annotation directory of van Hoff has a plurality of pattern matches (which it had before the combination) that include the topic names of Anthony, but there is not a plurality of class codes associated with any matching linkable character string. Thus, the combination of van Hoff and Anthony does not render obvious "the matching linkable character string has a plurality of class codes associated therewith" as recited in claims 1, 2, 7 and 8.

H. Commercial Success of Claims 1, 2, 7 and 8

As described *supra*, by using a matching linkable character string having a plurality of class codes associated therewith (e.g., as claimed in claims 1, 2, 7 and 8), the system can more accurately provide information relevant to the context of the web page being viewed by the user of the web browser. The patent describes that "[t]he major class can prevent inappropriate links for a character string which

is used in different contexts." A138, col. 19, lines 59-61. This is important for character strings (e.g., 'New York') that have different contexts (for example, depending on whether it is referring to the major class of tourism (e.g., New York Bureau of Tourism) or to the major class of sports (e.g., New York Yankees).) Thus, by using "a matching linkable character string [having] a plurality of class codes associated therewith," the system can more accurately provide information relevant to the context of the web page being viewed by the user of the web browser.

As described in the Declaration of Ketan Mayer-Patel (A2688-A2689), Petitioner describes its own system the same way when it states "our system scans the page searching for relevant words, phrases and meta data. These are then matched against Vibrant's database of suitable advertisers and/or content. ... The selected advertising words are identified in green with double underlines." A1417. The section entitled "IMPLEMENTING VIBRANT CODE" (A1417-A1418) describes the process of adding code to websites to enable them to perform the targeted advertising, where the ipid=1234 establishes a major class code of "1234." A1418, line 6. The major class code varies between publishers and can even vary within the same publisher depending on context (e.g., mobile vs. non-mobile). See A1592, numbered lines 861-871 (from Exhibit 2015 starting at A1566) where the publisher uses an ipid value of 37452 for non-mobile web publishing and an ipid

value of 54301 for mobile publishing (when the screen width is less than or equal to 768, as checked by line 864). As shown in Exhibits 2016 versus 2017, the destination addresses (www.inc.com/founders-forum versus www.filmannex.com) are different for the same linkable character string ("licensing") depending on the context. A1594-A1595. Similarly, as shown in Exhibits 2018 versus 2019, the destination address (an Intel advertisement and www.simpleyogalessons.com) are different for the same linkable character string ("employees") depending on the context. A1596-A1597.

In its Response to the Petition, Patent Owner provided a number of press releases (A1387-A1420) from Petitioner, Vibrant Media, showing commercial success. However, the PTAB held that "the evidence ... does not demonstrate adequately that Vibrant Media's system was commercially successful." A74. The PTAB further held:

> that evidence does not establish sufficiently that the alleged sales number constitutes commercial success when considered in relation to overall market share. In particular, it is unclear the numbers of publishers and users are "sales numbers" or revenue amounts. GE does not provide the fee amounts that Vibrant Media charges the publishers and users. More importantly, there is no indication that the

> alleged numbers of publishers and users represent a substantial quantity in the overall market share.

A74-A75. The PTAB further cited *Cable Elec. Prods., Inc. v. Genmark, Inc.*, 770 F.2d 1015 (Fed. Cir. 1985) and *In re Baxter Travenol Labs*, 952 F.2d 388 (Fed. Cir. 1991) in support of its decision to accord "GE's objective evidence ... little weight." A75. Both of those cases are distinguishable from the present facts. In *Cable Elec. Prods., Inc.*, this court found that "without further economic evidence . . . it would be improper to infer that the reported sales [of 5 million units] represent a substantial share of any definable market." 770 F.2d at 1026-27. In *In re Baxter Travenol Labs*, this Court previously held that "Information solely on numbers of units sold is insufficient to establish commercial success." 952 F.2d at 392. However, in the present case, GE did not solely provide numbers of units sold. GE presented not only the number of publishers (over 6,500 in September, 2012, and over 6,600 by 2013) who utilized the claimed technology to deliver targeted ads, but also the number of unique ***users*** monthly who saw relevant ads using the claimed technology. See A2687, Mayer-Patel Declaration, paragraph 30. The growth from 250 million ***users*** per month in September, 2012 to 300 million ***users*** per month by 2013 shows not only an increasing use of the technology but also a "substantial share" of the world population, let alone the computer-using portion of

the world. Thus, compared to the cited cases, additional evidence exists that compels the evidence to be considered and provided substantial weight.

Moreover, those same exhibits not only provide the number of publishers and unique users per month, they also describe that Petitioner is "the global leader of in-content contextual technology," (A1387) and "the world's leading provider of in-content contextual technology," (A1388; A1411). Furthermore, there is no requirement that users or publishers charge a fee in order for the invention to have had commercial success. Instead, as here, the success can be found by market adoption of the technology, even if the corresponding revenue is generated indirectly (e.g., from advertisers).

Patent Owner also showed a nexus between the commercial success and the claimed invention by utilizing Petitioner's own press releases (Exhibits 2001-2007). *See* A1387-A1416. Exhibit 2001 explicitly describes the importance of delivering relevant advertising when it states "Consumers no longer have patience for advertising that fails to inform or delight, so we've doubled-down on our commitment to respect those changing behaviors, offering brands highly viewable and ***relevant*** opportunities." A1387. Similarly, Exhibit 2002 shows that "users are demanding choice, control and relevance if they are to engage with ads." A1389. In fact, "69% [of the 500 women surveyed] report[ed] being more likely to pay attention to ads relevant to what they are reading." *Id*. Thus, the Petitioner's

success (and continued success) is dependent on the ability to provide appropriately relevant information.

Exhibit 2005 indicates that factors driving the Petitioner's technology include "in-context delivery [that] maximizes message relevancy" and "Precise key word targeting [that] delivers your message at key discovery moments." A1409. In fact, Petitioner describes the "Benefits" as including "Unprecedented Relevancy: word-level targeting -- maximizes relevance and results." *Id*. Exhibit 2007 further provides testimonials from a number of advertisers and major companies. A1415-A1416. For example, one media manager indicated that the Petitioner's technology "permits us to target content at a keyword level across ... publications proving strong reach whilst minimizing wastage." A1415.

Exhibit 2004 further touts Petitioner's system when is states "IN-CONTENT DELIVERY MAXIMIZES RELEVANCY OF MESSAGE" and describes as a benefit "Unprecedented Relevancy: Word-level targeting -- maximizes relevance and results." A1393. Accordingly, Patent Owner's evidence of commercial success is entitled to substantial evidence.

I. Claims 3-5 and 9-11 Are Separately Patentable

In addition to the fact that claims 3-5 and 9-11 are patentable as there is no motivation to combine the applied references, as discussed *supra*, claims 3-5 and

9-11 also are separately patentable. Claim 3 recites "wherein at least some of said linkable character strings in said annotation database have an associated major class code, further comprising: qualifying means associated with said annotation database for qualifying the matching linkable character string according to qualification criteria which requires the major class code of the matching linkable character string to match a preferred major class code." Claims 4 and 5 depend from claim 3. Claim 9 recites "wherein each of said linkable character strings in said annotation database has an associated major class code" and "qualifying the matching linkable character string according to qualification criteria which requires the major class code of the matching linkable character string to match a preferred major class code."

In its decision, the Board held "The topic '*medical*' as disclosed in van Hoff is a *subject area*, and, therefore, meets the definition of the claim term 'major class code.'" A72. However, the numerical relevance indicators are what are alleged by Petitioner to correspond to the major class code, not a character string "medical". Under cross examination, Dr. Hellman also agreed that "there's no inherent way of ordering particular subject terms" (A1512, 72:16-17), so "medical" does not inherently correspond to a particular major or broad class code. Further, there is no indication in the decision as to what relevance indicator "medical" might

correspond to, so the topic "medical" cannot meet the definition of a major class code.

The decision further held that "van Hoff describes that, when the user specifies a relevance threshold to the merger procedure, only annotations with an assigned relevance value equal to or higher than the relevance threshold are added to user requested documents." A72-A73. However, if the relevance threshold of the broad topic area were to be used, then the comparison would be against the lowest relevance threshold, and no links would be excluded, so there would be no point in comparing that relevance indicator with a preferred major class code as nothing would be excluded. See, A2692, Declaration of Ketan Mayer-Patel, ¶42. Thus, claims 3-5 and 9-11 are not rendered obvious by the combination of van Hoff and Anthony or the combination of van Hoff, Anthony and Logue.

J. Claims 6 and 12 Are Separately Patentable

In addition to the fact that claims 6 and 12 are patentable as there is no motivation to combine the applied references, as discussed *supra*, claims 6 and 12 also are separately patentable. Claim 6 recites "said assigning means is adapted to communicate with a search engine for searching an information network using particular ones of said linkable character strings as search terms to obtain particular ones of said corresponding destination addresses" and "a destination filter

associated with said assigning means for filtering destination addresses obtained from said search engine according to preference criteria to obtain said destination addresses which are assigned to said linkable character strings." Similarly, claim 12 recites "communicating with a search engine for searching an information network using particular ones of said linkable character strings as search terms to obtain particular ones of said corresponding destination addresses" and "filtering destination addresses obtained from said search engine according to preference criteria to obtain said destination addresses which are assigned to said linkable character strings."

In paragraph 83 of his declaration, Dr. Hellman alleges that "each cross reference document source 194 (destination address) can be assigned a relevance indicator (RI)." A2554. In paragraph 84, he asserts that "[o]ne of ordinary skill in the art would have recognized that van Hoff would inherently include a 'filter' that uses the relevance threshold as criteria to filter and obtain destination addresses from candidate addresses." A2554. However, those claims are not directed to filtering while reading information out of the database, they are directed to filtering what is being put into the database, so the "relevance indicators" in van Hoff are irrelevant as they operate on the processing of what is read out. More specifically, the claims recite "filtering destination addresses obtained from said search engine according to preference criteria to obtain said destination addresses which are

assigned to said linkable character strings." That is, the destination addresses are obtained from the search engine, filtered, and the filtered ones "are assigned to said linkable character strings." Dr. Hellman instead is attempting to apply the prior art as if the claims said "filtering destination addresses obtained from said search engine according to preference criteria to obtain said destination addresses which [were previously] assigned to said linkable character strings."

In its decision, the Board held the "Dr. Hellman did not cite the relevan[ce] indicators in van Hoff for the narrow context of filtering addresses that are read out from a database, as alleged by GE." A78 (citing Ex. 1003 ¶¶ 81–82 (A2553) and Petitioner's Reply (A2205-A2206)). However, the only evidence of "why" he cited the relevance indicators is what is disclosed in his declaration. In fact, paragraphs 81 and 82 do not discuss the relevance indicators at all, so the Board misunderstood the issue. In fact, the Board seemed to follow the Petitioner's Reply (A2206) and held "Kleinberg recognizes the common problem that search results often yield a large set of destination addresses. Ex. 1003 ¶ 82." A78. The Reply cites to paragraph 82 of Dr. Hellman's declaration in support of the allegation that "One of ordinary skill in the art would understand that search results often yield a large set of destination addresses. Kleinberg recognized this common problem. (Ex. 1003, ¶ 82; Ex. 1006, 3:46-59.)" A2206. However, paragraph 82 itself does not discuss the size of the set of destination addresses, how to identify

relevant web pages or how relevance indicators or used, as alleged by the reply (and mirrored by the decision). Instead, paragraph 82 simply states:

> 82. Consistent with my opinion, Kleinburg, for example, discloses that search engines, using keywords or character strings as search terms for obtaining web pages and their destination addresses (e.g., from the Internet), are common and known before the priority date of the '074 patent (Kleinburg, Ex. 1006, col. 3, ll. 19-29 and 40-51, and col. 4, ll. 34-36 and 43-48).

Any attempt in the Reply to recharacterize portions of Kleinberg as teaching something that was not disclosed is Dr. Hellman's report is untimely. In fact, as seen in the Reply (A2206), the actual support for Board's findings is Dr. Hellman's supplemental declaration, Exhibit 1014, paragraphs 28 and 30, (A2669-A2670) which were the subject of Patent Owner's Motion to Exclude (A2234-A2237) as untimely and which should have been excluded as those opinions were not provided as part of Dr. Hellman's initial declaration. Thus, claims 6 and 12 are patentable over the combination of van Hoff, Anthony, Kleinberg and Borden.

VII. CONCLUSION AND RELIEF REQUESTED

For the reasons set forth above, Appellant requests that this Court exclude the improper rebuttal testimony of Dr. Hellman and find claims 1-12 nonobvious over van Hoff and Anthony, either alone or in combination with any other applied reference.

Dated: February 18, 2015

Respectfully submitted,

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ADDENDUM

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Paper 50
Entered: July 28, 2014

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VIBRANT MEDIA, INCORPORATED,
Petitioner,

v.

GENERAL ELECTRIC COMPANY,
Patent Owner.

Case IPR2013-00172
Patent 6,092,074

Before JONI Y. CHANG, JAMES B. ARPIN,
MITCHELL G. WEATHERLY, *Administrative Patent Judges*.

Opinion for the Board filed by *Administrative Patent Judge Chang*.

Opinion Dissenting-in-Part filed by *Administrative Patent Judge Weatherly*.

CHANG, *Administrative Patent Judge.*

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

Vibrant Media Corporation ("Vibrant Media") filed a Petition on February 27, 2013, requesting an *inter partes* review of claim 1–12 of Patent No. US 6,092,074 (Ex. 1001; "the '074 patent"). Paper 1 ("Pet."). General Electric Company ("GE") did not file a Patent Owner Preliminary Response. We determined that the information presented in the Petition demonstrated that there was a reasonable likelihood that Vibrant Media would prevail with respect to claims 1–12. Pursuant to 35 U.S.C. § 314, we instituted this trial as to those claims. Paper 8 ("Dec.").

After institution, GE filed a Patent Owner Response (Paper 19, "PO Resp."), but elected not to file a Motion to Amend Claims. In response, Vibrant Media filed a Reply to the Patent Owner Response (Paper 25, "Pet. Reply"). Oral hearing was held on February 24, 2014.[1]

We have jurisdiction under 35 U.S.C. § 6(c). This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a). We conclude that claims 1–12 of the '074 patent are unpatentable under 35 U.S.C. § 103(a).

A. Related Proceeding

Vibrant Media indicates that the '074 patent is the subject of litigation titled *General Electric Co. v. Vibrant Media, Inc.*, No. 1:12-cv-00526-UNA (D. Del.). Pet. 1. Vibrant Media also filed another Petition in IPR2013-

[1]This proceeding and IPR2013-00170 involve the same parties and similar issues. The oral arguments for both *inter partes* reviews were merged and conducted at the same time. A transcript of the oral hearing is included in the record as Paper 49.

00170, seeking *inter partes* review of Patent No. US 6,581,065 B1, which is a continuation of the '074 patent.

B. The '074 patent

The '074 patent relates to a computer system for providing hypertext anchor codes and destination addresses for a user-readable text file. Ex. 1001, 1:7–9. At the time of the invention, hypertext was a common method of linking related computer files or pages. *Id*. at 1:19–23. According to the '074 patent, it would be desirable to provide a system that automatically enters hypertext links into a computer file, such as a news article or other sequence of user-readable character strings. *Id*. at 3:35–38.

C. Illustrative Claim

Of the challenged claims, claims 1, 3, 6, 7, 9, and 12 are independent claims. Claim 7, reproduced below, is illustrative:

> 7. A method for providing hypertext links for a plurality of character strings including a first character string, said method comprising the steps of:
>
> providing an annotation database associated with a primary computer which comprises a plurality of linkable character strings;
>
> providing a destination database associated with said primary computer which comprises a plurality of destination addresses;
>
> determining a matching linkable character string for said first character string, if present, in said annotation database;
>
> wherein said matching linkable character string is associated with at least one of said destination addresses;
>
> wherein said annotation database further comprises a plurality of class codes which are associated with said plurality

of linkable character strings;

the matching linkable character string has a plurality of class codes associated therewith; and

said destination database comprises a plurality of destination addresses corresponding to said plurality of class codes of the matching linkable character string;

said method comprising the further steps of:

querying said destination database to obtain the plurality of destination addresses corresponding to the associated plurality of class codes; and

providing a plurality of anchor codes which relate said matching linkable character string to said corresponding plurality of destination addresses to provide a corresponding plurality of hypertext links for said first character string.

D. Prior Art Relied Upon

Vibrant Media relies upon the following prior art references:

van Hoff	US 5,822,539	Oct. 13, 1998	(Ex. 1004)
Anthony	US 5,815,830	Sep. 29, 1998	(Ex. 1005)
Kleinberg	US 6,112,202	Aug. 29, 2000	(Ex. 1006)
Borden	US 5,495,606	Feb. 27, 1996	(Ex. 1007)
Logue	US 5,935,207	Aug. 10, 1999	(Ex. 1008)

E. Grounds of Unpatentability

We instituted the instant trial based on the following grounds of unpatentability:

Claim	Basis	References
1–5, 7–11	§ 103(a)	van Hoff and Anthony
6, 12	§ 103(a)	van Hoff, Anthony, Kleinberg, and Borden
9	§ 103(a)	van Hoff, Anthony, and Logue

II. ANALYSIS

A. Claim Construction

Consistent with the statutory language and legislative history of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) ("AIA"), we interpret claims using the broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *see also* Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012). This is true even if a district court has construed the patent claims. *See* Changes to Implement *Inter Partes* Review Proceedings, Post-Grant Review Proceedings, and Transitional Program for Covered Business Method Patents, Final Rules, 77 Fed. Reg. 48,680, 48,697(Aug. 14, 2012) (citing *In re NTP, Inc.*, 654 F.3d 1269, 1274 (Fed. Cir. 2011)); *see also SAP America, Inc. v. Versata Development Group, Inc.*, CBM2012-00001, slip op. 7–19 (PTAB June 11, 2013) (Paper 70).

Under the broadest reasonable construction standard, claim terms are presumed to have their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech. Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). An inventor may rebut that presumption by providing a definition of the term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). In the absence of such a definition, limitations are not to be read from the specification into the claims. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993).

In its Patent Owner Response, GE argues that applying the broadest reasonable construction standard in the instant proceeding is improper, because GE "has neither elected to make any amendments nor reopen prosecution itself." PO Resp. 7–8. That argument is unpersuasive.

GE had the opportunity to file a motion to amend its claims, but chose not to seek to amend its claims. The mere fact that GE did not choose to seek to amend its claims is not sufficient reason to justify changing the claim construction standard. Petitioner submitted in its Petition its patentability analysis and support evidence based on the broadest reasonable construction standard. We also determined whether to institute an *inter partes* review based on the broadest reasonable construction standard. Dec. 5–23.

For the foregoing reasons, we are not persuaded by GE's argument that we should deviate from the broadest reasonable construction standard under 37 C.F.R. § 42.100(b).

System claims that include method steps

As noted in the decision on institution (Dec. 6–7), claim 9 is a system claim that includes a method step:

> 9. A computer system for providing hypertext links for a plurality of character strings including a first character string, said computer system comprising:
>
> defining means associated with said central computer for defining a plurality of linkable character strings;
>
> an annotation database associated with said central computer for storing said plurality of linkable character strings;
>
> assigning means associated with said central computer

> for assigning at least one corresponding destination address to each of said linkable character strings;
>
> a destination database associated with said central computer for storing the assigned destination addresses;
>
> transmitting means associated with said central computer for transmitting specific ones of said plurality of linkable character strings and specific ones of said destination addresses to said plurality of primary computers via said communication network in an intermittent maintenance mode;
>
> receiving means associated with said central computer for receiving hit count data from said primary computers via said communication network;
>
> wherein each of said linkable character strings in said annotation database has an associated major class code, *comprising the further steps of*:
>
> *qualifying* the matching linkable character string according to qualification criteria which requires the major class code of the matching linkable character string to match a preferred major class code.

Ex. 1001, 27:1–32 (emphasis added).

Claims 10 and 11 directly depend from claim 9. Rather than referring back to *the computer system* of claim 9, each of those dependent claims refers back to "*the method* of claim 9" and requires an additional method step. Claims 10 and 11 are reproduced below:

> 10. The *method* of claim 9**,** comprising *the further steps of*: receiving an administrator input which designates said preferred major class code.
>
> 11**.** The *method* of claim 9**,** comprising *the further step of*: receiving a signal indicative of said preferred major class code from a central computer via a communication network.

Id. at 27:33–28:4 (emphases added). In its Patent Owner Response, GE maintains that claim 9 is directed to a system and that, in light of the Specification and file history (Ex. 1002), one of ordinary skill in the art could have interpreted the method step as a means-plus-function limitation—"further comprising: qualifying *means for qualifying* the matching linkable character string." PO Resp. 4–5 (citing Ex. 2013 ¶ 45). According to GE's expert witness, claim 9 should be read consistently with claim 3, which *actually* recites a means-plus-function limitation. Ex. 2013 ¶ 45. GE also argues that the method steps recited in claims 10 and 11 should be interpreted as means-plus-function limitations—"*interface means for* receiving an administrator input," and "*receiving means for* receiving a signal," respectively. PO Resp. 5–7 (citing Ex. 2013 ¶¶ 48–49).

We are not persuaded by GE's arguments. GE had an opportunity in this proceeding, pursuant to 37 C.F.R. § 42.121, to file a motion to amend the claims to clarify the ambiguity, but chose not to seek to amend its claims. Each of claims 9–11 deliberately recites "comprising the further steps of." We decline to rewrite the aforementioned method steps, on Patent Owner's behalf, as means-plus-function limitations to invoke 35 U.S.C. 112, ¶ 6.[2] *See Chef Am., Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1374 (Fed. Cir. 2004) (The U.S. Court of Appeals for the Federal Circuit "repeatedly

[2] Section 4(c) of the AIA re-designated 35 U.S.C. § 112, ¶ 6, as 35 U.S.C. § 112(f). Pub. L. No. 112-29, 125 Stat. 284, 296-07 (2011). Because the '074 patent has a filing date before September 16, 2012 (effective date), we will refer to the pre-AIA version of 35 U.S.C. § 112, in this decision.

and consistently has recognized that courts may not redraft claims, whether to make them operable or to sustain their validity.").

We are cognizant that courts may correct a patent claim in certain situations where the correction is *minor*, and one of ordinary skill in the art would have recognized the correction. *See, e.g., Ultimax Cement Manuf. Corp. v. CTS Cement Manuf. Corp.*, 587 F.3d 1339, 1353 (Fed, Cir. 2009). Here, we observe, however, that rewriting a method step as a means-plus-function limitation is a *material change*, and not a minor one. In fact, it is well settled that the use of the word "means" creates a rebuttable presumption that the patentees intended to invoke § 112, ¶ 6, whereas failure to use the word "means" creates a rebuttable presumption that the patentees did not intend to invoke § 112, ¶ 6. *Flo Healthcare Solutions, LLC v. Kappos*, 697 F.3d 1367, 1373 (Fed. Cir. 2012); *Personalized Media Commc'ns, LLC v. Int'l Trade Comm'n*, 161 F.3d 696, 703–04 (Fed. Cir. 1998). More importantly, "the presumption flowing from the absence of the term 'means' is a strong one that is not readily overcome." *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1358 (Fed. Cir. 2004).

For the foregoing reasons, we decline to interpret the aforementioned method steps recited in claims 9–11, as means-plus-function limitations.

Although we recognize that a claim reciting an apparatus and method steps would not be in compliance with § 112, ¶ 2, for *infringement* purposes (Dec. 7), we will analysis claims 9–11 in this decision to determine the patentability of those claims based on the obviousness grounds of unpatentability asserted by Vibrant Media, rather than terminating the

proceeding as to those claims. The main issue in this decision is whether Vibrant Media has demonstrated by a preponderance of evidence that the challenged claims would have been *obvious* over the cited prior art references (e.g., van Hoff and Anthony). Dec. 29. Put simply, we decide on the *patentability* of those claims based on the grounds of unpatentability asserted by Vibrant Media, rather than *infringement* of those claims. *See* 35 U.S.C. § 318(a). It is not necessary for us to determine whether each of claims 9–11 complies with § 112, ¶ 2, for *infringement* purposes in this decision. More importantly, we maintain our focus on the issue of *patentability* based on the evidence before us.

In addition, an indefiniteness determination in this proceeding would not have prevented us from deciding whether the claims would have been *obvious* over the cited prior art. We recognize that, in certain situations where the claim scope could not be ascertained without requiring considerable speculation, the prior art ground of unpatentability would be reversed, *pro forma*. For example, the court in *In re Steele* stated:

> Our analysis of the claims indicates that *considerable speculation as to meaning of the terms* employed and assumptions as to the scope of such claims were made by the examiner and the board. We do not think a rejection under 35 U.S.C. [§] 103 should be based on such speculations and assumptions.

305 F.2d 859, 862 (CCPA 1962) (emphasis added).

In other situations, the court, however, has decided the prior art ground of unpatentability on the merits, rather than *pro forma* reversing the prior art rejection, even after determining that the claim does not comply

with § 112, ¶ 2. *See, e.g., In re Collier*, 397 F.2d 1003, 1005–1006 (CCPA 1968) (The court affirmed the obviousness rejection based on the prior art of record, even when the claim was determined to be indefinite, failing to comply with § 112, ¶ 2.).

In this proceeding, we can ascertain the scope of each claim limitation with reasonable certainty, in view of the Specification and mindful of the inventor's actions during the prosecution of the '074 patent.[3] *See* Ex. 1002, 160 (amendment of *method* claim 50, renumbered as independent claim 9, to describe a *computer system*). We interpret claims 9–11, for the purposes of this decision, as requiring both the recited apparatus claim elements and the recited method steps.

Means-Plus-Function Limitations

In the Decision on Institution, we set forth the claim constructions for eleven means-plus-function elements under 35 U.S.C. § 112, ¶ 6. Dec. 11–23. Neither GE nor Vibrant Media disputes our claim constructions for those elements. PO Resp. 9; Pet. Reply 2–3. We will apply our claim

[3] We acknowledge the dissent to this decision, as to claims 9–11, but respectfully disagree. We are unpersuaded that the interpretation of those claims requires considerable speculation, or our obviousness determination here is based on less than all of the claimed elements. We discern no reason why the *patentability* of those challenged claims cannot be determined under 35 U.S.C. § 318(a), based on the prior art of record. Further, because the majority addresses all claim elements, we believe that the dissent's concerns about a speculative construction are unwarranted.

constructions set forth in the Decision on Institution for those means-plus-function elements also in this Final Written Decision.

Other Claim Terms

The parties proposed claim constructions for several other terms. Pet. 5–8; PO Resp. 9–10. For the purposes of this Final Written Decision, we find it necessary to interpret expressly only the following claim terms: "destination addresses," "class codes," "major class code," and "preferred major class code."

1. *"Destination addresses" (claims 1, 3, 6–7, 9, 12)*

The term "destination addresses" is recited, for example, in claim 1—"a destination database associated with said primary computer which comprises a plurality of *destination addresses*" (emphasis added). As Vibrant Media points out, the Specification of the '074 patent defines the term "destination address" as "a variable that designates the location of a network resource such as a Web page; may take the form of a URL." Pet. 15 (citing Ex. 1001, 11:15–17). GE agrees with Vibrant Media's claim construction. PO Resp. 9. As the definition is set forth with sufficient clarity in the Specification, we also agree with Vibrant Media's construction, and adopt it as the broadest reasonable interpretation for the claim term "destination addresses." *See Paulsen*, 30 F.3d at 1480.

2. "Class codes" (claims 1 and 7), "major class code" (claims 3–5 and 9–11), and "preferred major class code" (claims 3–5 and 9–11)

The claim term "class codes" is recited, for example, in claim 1—"wherein said annotation database further comprises a plurality of *class codes* which are associated with said plurality of linkable character strings" (emphasis added). The claim term "major class code" is recited, for example, in claim 3—"wherein at least some of said linkable character strings in said annotation database have an associated *major class code*" (emphasis added). The claim term "preferred major class code" is recited, for example, in claim 3—"qualifying means associated with said annotation database for qualifying the matching linkable character string according to qualification criteria which requires the major class code of the matching linkable character string to match a *preferred major class code*" (emphasis added). The parties proposed the following claim constructions:

Claim Terms	Vibrant Media's proposed claim constructions	GE's proposed claim constructions
Class code	Identifiers or descriptors (including descriptive metadata) or any form, each identifying or referring to (i) a particular area or type of subject or topic, and/or (ii) a category or function of an associated destination address. Pet. 5–6 (citing, *e.g.*, Ex. 1001, 13:43–48).	Codes that can designate or identify a particular context or subject area or control the number and type of a destination address. PO Resp. 10 (citing, *e.g.*, Ex. 1001, 5:5–22, 8:29–43, 13:43–48, 18:2–30).

Major class code	An identifier that references or identifies a topic area that (i) may be broader, or of less specificity, relative to some other class codes, and/or (ii) encompasses certain other class codes or types of class codes. Pet. 7 (citing Ex. 1001, *e.g.*, 18:9–16).	Class codes that can designate or identify a particular context or subject area. PO Resp. 10 (citing Ex. 1001, 6:28–35, 7:62–67, 18:2–30, 19:41–20:13).
Preferred major class code	An identifier that represents a "major class code" that is desired or otherwise is given priority over others, for example, one having a topic area known to be relevant or related to a particular article. Pet. 7 (citing Ex. 1001, 18:9–16).	Major class code that is desired so as to bypass matching linkable character strings with other major class codes. PO Resp. 10 (citing Ex. 1001, 6:28–41, 9:34–43, 20:3–13).

Vibrant Media disagrees with GE's proposed claim constructions for the claim terms "class code" and "major class code." Pet. Reply 2–3. Nevertheless, we observe that GE's constructions for those claim terms do not present a difference from Vibrant Media's constructions that would affect the outcome of the prior art analysis. Vibrant Media agrees. *See* Pet. Reply 13; Tr. 8:23–10:14. Moreover, because GE's claim constructions for those terms appear consistent with the Specification and do not import limitations from the Specification into the claims, we adopt those constructions as the broadest reasonable interpretations. *See* Ex. 1001, 5:5–22, 6:28–35, 7:62–67, 8:29–43, 13:43–48, 18:2–30, 19:41–20:13, 20:33–41.

However, we decline to adopt GE's proposed construction for the claim term "preferred major class code"—"major class code that is desired *so as to bypass matching linkable character strings with other major class codes*" (PO Resp. 10 (emphasis added))—as it would import improperly a limitation from the Specification into the claims. *See Superguide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004) ("Though understanding the claim language may be aided by the explanations contained in the written description, it is important not to import into a claim limitations that are not a part of the claim."). GE has not directed our attention to a special definition in the Specification. Nor does GE allege that the inventors of the '074 patent acted as their own lexicographer and provided a special definition in the Specification for the claim term that is different from its recognized meaning to one of ordinary skill in the art. It is well settled that, if a feature in the specification is not necessary to give meaning to what the inventor means by a claim term, it would be "extraneous" and should not be read into the claim. *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998); *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co*., 849 F.2d 1430, 1433 (Fed. Cir. 1988).

Accordingly, we construe the claim term "preferred major class code" as a major class code that is desired or given priority, consistent with the ordinary and customary meaning of the term as would be understood by one of ordinary skill in the art in the context of the Specification of the '074 patent. *See, e.g.*, Ex. 1001, 6:28–41, 9:34–43, 18:9–16, 20:3–13.

B. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc*., 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966).

In that regard, an obviousness analysis "need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR*, 550 U.S. at 418; *see also Translogic*, 504 F.3d at 1259. A prima facie case of obviousness is established when the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art. *In re Rinehart*, 531 F.2d 1048, 1051 (CCPA 1976). The level of ordinary skill in the art may be reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc*., 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

We analyze the instituted grounds of unpatentability in accordance with the above-stated principles.

C. Claims 1–5 and 7–11 – Obvious over van Hoff and Anthony

Vibrant Media asserts that claims 1–5 and 7–11 are unpatentable under 35 U.S.C. § 103(a) over van Hoff and Anthony. Pet. 18–40, 46–51. As support, Vibrant Media provides detailed explanations as to how each claim limitation is met by the cited prior art reference, and proffers the Declaration of Dr. Eric Hellman. Pet. 46–54 (citing Ex. 1003).

However, GE responds that the combination of van Hoff and Anthony fails to disclose certain claim features. PO Resp. 16–19, 23–28. GE also advances several arguments under the premise that there is insufficient reason to combine the teachings of van Hoff and Anthony. *Id*. at 14–15. GE further proffers objective evidence of nonobviousness (Exs. 2001–08, 2015–21), and directs our attention to the Declaration of Dr. Ketan Mayer-Patel (Ex. 2013). *Id*. at 19–23.

Upon consideration of the parties' contentions and supporting evidence, we determine that Vibrant Media has demonstrated by a preponderance of evidence that claims 1–5 and 7–11 are unpatentable over the combination of van Hoff and Anthony. In our analysis below, we address GE's arguments presented in the Patent Owner Response, focusing on the deficiencies alleged by GE with regard to the challenged claims.

van Hoff

In general, van Hoff describes both a system and a method for annotating automatically a document so as to interconnect that document via hypertext links to a set of documents known to contain supplemental

information. Ex. 1004, Abs., 1:8–11, 2:7–11. Figure 1 of van Hoff, reproduced below, depicts van Hoff's distributed computer system:

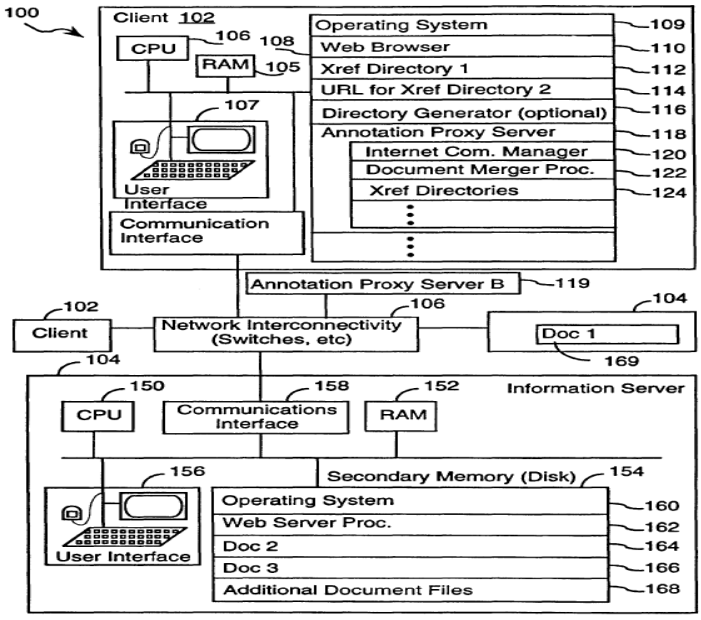

FIG. 1

As shown in Figure 1 of van Hoff, distributed computer system 100 includes many client computers 102 connected to information server computer 104 via Internet 106. Each client computer 102 includes communication interface 103, RAM 105, CPU 106, user interface 107, and memory 108. *Id*. at 4:1–21. In a preferred embodiment of van Hoff, annotation proxy server 119 is located on the same platform as client computer 102. *Id*. at 5:3–5.

Figure 2 of van Hoff is reproduced below with our annotation:

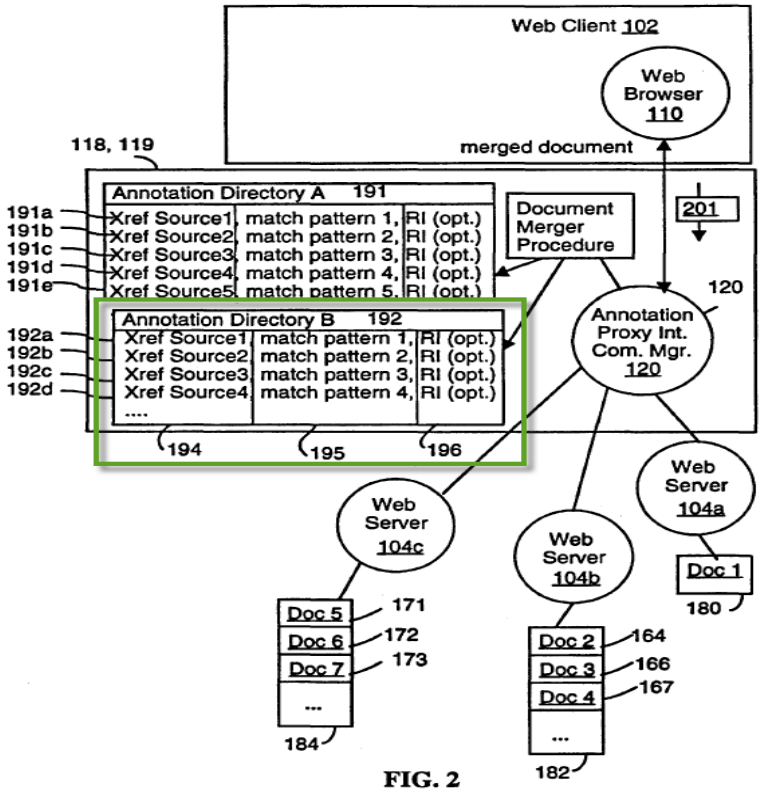

FIG. 2

As shown in Figure 2 of van Hoff, annotation proxy server 118, 119 having a plurality of annotation directories 191, 192. Each annotation directory includes a plurality of paired entries (e.g., 192a through 192d), and each entry includes: (1) cross-reference document source field 194, which identifies the unique location of a cross-reference document; (2) match pattern field 195, which defines a character pattern; and (3) other optional fields, such as relevance indicator field 196 to indicate the relevance or importance of associated match pattern 195 or cross-reference source 194. *Id*. at 5:27–40, 5:50–55.

If a character pattern is found in a requested document, an annotation linking the portion of the document associated with the matching pattern to the paired cross-reference source is inserted into the requested document. *Id*. at 5:41–54, 6:65–7:11. For instance, if a match pattern is the phrase "JAVA!" and the paired cross-reference source is SUN.COM.JAVAINFO, then a hyperlink annotation "<link to SUN.COM.JAVAINFO>" is added to the requested document in association with the "JAVA!" phrase pattern. *Id*.

In a preferred embodiment, van Hoff describes that the hyperlink annotation also may be provided in a hierarchical format. *Id*. at 8:49–50. For example, when a term in the document satisfies the match pattern in the annotation directory, the link may reflect a hierarchical cross-reference list in order of increasing specificity, such as "medical," "oncology," "melanoma," "treatment," and radiation." *Id*. Furthermore, in the situation in which a relevance indicator field is used, the hyperlink annotation includes a relevance index (RI) (*e.g.*, "<link to CR=URLX1, *RI=2*>"). *Id*. at 9:5–12 (emphasis added). The system allows the user to set a threshold during viewing to indicate which relevance indicator levels are to be displayed. *Id*. at 9:61–63.

Anthony

Anthony discloses a computer system and method for generating hyperlinks automatically in a text document, to facilitate cross-referencing documents, and to allow fast and easy access to relevant information. Ex. 1005, Abs, 1:6–8, 1:35–40, 2:34–43. In particular, Anthony describes a

system for creating associations between links and data, referred to as "Auto_Hyperlinking™." *Id*. at 5:4–11. The system finds a word or phrase in a text document that matches a topic name, and then automatically hyperlinks the word or phrase to the topic. *Id*. The link is made with reference to a database that stores the topic text, reference name, the location of the information for each topic, and the navigational links for the hypertext jumps. *Id*. at 5:14–18.

A plurality of class codes

Claim 1 recites "the matching linkable character string has a plurality of class codes associated therewith," and "said destination database comprises a plurality of destination addresses corresponding to said plurality of class codes of the matching linkable character string." Claim 7 recites similar features.

In its Petition, Vibrant Media asserts that the combination of van Hoff and Anthony would have rendered the aforementioned "class codes" claim features obvious to one of ordinary skill in the art at the time of the invention. Pet. 28–31, 34–37; Ex. 1003 ¶¶ 52–61. In particular, Vibrant Media asserts that the use of topic or reference names (i.e., class codes) to identify topic area was known in the art at the time of invention, as evidenced by Anthony. *Id*. at 29 (citing Ex. 1005, 4:10–20, 4:60–65, 5:8–18). Vibrant Media notes that Anthony discloses storing topic or reference names (class codes) with identifiers for locations of corresponding data in a database, and providing the navigational links for the hypertext jumps.

Ex. 1005, 2:64–3:1, 5:8–18. Anthony also describes using a topic or reference name (class codes) to search for matching character strings in the "Auto Hyperlinking™" process. *Id*. at 4:16–28, 4:63–65.

As Vibrant Media explains, van Hoff discloses that a document term matching a match pattern may be hyperlinked with a hierarchical cross-reference list of document sources arranged in order of specificity over a number of topics. Pet. 30 (citing Ex. 1004, 8:49–54). According to Vibrant Media, "van Hoff teaches a plurality of topics that is both associated with a plurality of document sources as well as with a corresponding match pattern." *Id*. Dr. Hellman testifies that van Hoff, in combination with Anthony, discloses "that these topics are associated with topic names (class codes), which are in turn associated with the matching document term and corresponding cross-reference document sources." Ex. 1003 ¶ 61.

In its Patent Owner Response, GE counters that the combination of van Hoff and Anthony fails to teach or suggest the aforementioned class code claim features. PO Resp. 16–17. In particular, GE argues that one of ordinary skill in the art would not have "appreciated that a character string may be associated with *a number of topics* of different specificity, corresponding to different cross-reference source documents." *Id*. at 17–18 (emphasis added). GE further alleges that "each linkable character string only appears once in the database and with at most one relevance indicator." *Id*. GE also contends that the "topics" of Anthony are not class codes, but linkable character strings. *Id*. at 18–19.

We are not persuaded by GE's arguments. Contrary to GE's assertion that "[t]here is no indication that multiple links would be stored for the same term" (PO Resp. 18), van Hoff clearly discloses that an annotation for a matched term includes *a plurality of hypertext links*. Ex. 1004, 8:49–54.

Specifically, van Hoff discloses that:

> *The annotation including hypertext links* may be provided in a hierarchical format. For example, when a term in the document satisfies the match pattern in the annotation directory, the link may reflect *a hierarchical cross-reference list in order of increasing specificity such as: "medical," "oncology," "melanoma," "treatment," and "radiation."*

Id. (emphases added). As Dr. Hellman testifies, the cited portion of van Hoff describes that "a single match pattern in the annotation directory can be associated with *a number of topics* of different specificity arranged in a hierarchy." Ex. 1014 ¶ 17 (emphasis added). We credit Dr. Hellman's testimony, as it is consistent with the express disclosure of van Hoff. *See* Ex. 1004, 8:49–54.

We also are not persuaded by GE's argument that "each linkable character string is only associated with a *single portion* of the hierarchy." *See* PO Resp. 17–18 (emphasis added). GE's argument narrowly focuses on the term "the link" used in van Hoff's *example* (*id*. at 18), and ignores the first sentence of the cited paragraph—"The annotation including *hypertext links* may be provided in a hierarchical format." Ex. 1004, 8:49–50 (emphasis added). Importantly, van Hoff's example also refers to a hierarchical cross-reference list of *topics*—in order of increasing specificity

such as: "medical," "oncology," "melanoma," "treatment," and "radiation." Ex. 1004, 8:49–54.

Further, GE's argument that Anthony's topic or reference names are not "class codes" is unavailing. Even under GE's proposed claim construction which, as discussed above, we adopt as the broadest reasonable interpretation, the claim term "class code" reads on Anthony's topic or reference names. GE specifically states that the claim term "class code" includes a code that identifies a particular *subject area*. PO Resp. 10. That construction is consistent with the Specification of the '074 patent which provides that *class codes* can be assigned to various *subject areas* such as business, sports, travel, books, and compact discs (e.g., # 100 = business). Ex. 1001, 13:43–48, 18:5–10.

Although the Specification of the '074 patent provides *numerical* class codes as examples, GE's expert witness, Dr. Mayer-Patel, testifies that a class code may be a *linkable character string* (e.g., "sports"). Ex. 1015, 94:12–23, 96:12–20. In fact, Dr. Mayer-Patel testifies that "[t]here's nothing in [the '074 patent] that prevents the major class codes from being strings instead of numerical numbers." *Id*. at 96:6–8. Anthony specifically states that a reference name "is a unique, meaningful *name which indicates the subject matter* of the data portion to which it refers," and "may be a word, a phrase, or other *string indicative of the topic* of the data portion." Ex. 1005, 4:10–20 (emphases added). Therefore, Anthony's topic or reference names fall within the scope of "class codes."

For the foregoing reasons, we determine that Vibrant Media has shown sufficiently that a person of ordinary skill in the art would have found it obvious to modify van Hoff's system in light of Anthony's teachings of topic or reference names to arrive at the "class code" claim features.

Reasons to combine van Hoff and Anthony

In its Petition, Vibrant Media submits several rationales for modifying van Hoff's system in light of Anthony's disclosure to arrive at the claimed "class code" features. Pet. 28–31; Ex. 1003 ¶¶ 56–58. Notably, Vibrant Media indicates that combining the use of class codes as a known technique taught by Anthony, with known elements from van Hoff, according to known database methods, yields the predictable result of achieving dynamic hyperlinking based on related topics. Pet. 28. By adding a plurality of class codes (e.g., topic or reference names) to van Hoff's annotation directory (e.g., utilizing van Hoff's optional fields in the annotation directory, similarly to relevance indicator field 196), in light of Anthony's teachings, van Hoff's match patterns would have a plurality of class codes associated therewith, and van Hoff's annotation directory would have a plurality of cross-reference document sources corresponding to the plurality of class codes. Furthermore, in doing so, van Hoff's annotation proxy servers 118, 119 could obtain the plurality of cross-reference sources corresponding to the associated plurality of class codes, and a user could qualify the match pattern according to the relevance index associated with the class code or the hierarchical cross-reference list.

Vibrant Media also points out that the prior art would have directed one of ordinary skill in the art to make the combination of van Hoff and Anthony, because van Hoff describes the goal of linking a character string of a document with one or more documents related by subject or topic. Pet. 28–31; Ex. 1003 ¶ 56 (citing Ex. 1004, 1:6–2:11). Indeed, van Hoff states that "[i]t is a goal of the present invention to provide a system and method for automatically annotating a received document so as to interconnect that document via HYPERTEXT LINKS to a set of documents known to contain supplemental information *related to the topic* of the received document." Ex. 1004, 2:7–11 (emphasis added).

However, in its Patent Owner Response, GE counters that one of ordinary skill in the art would not have combined van Hoff and Anthony. PO Resp. 14–15 (citing Ex. 2013 ¶ 20). In particular, GE alleges that the topologies—the patterns of connections between the computers that are participating in the system—used in van Hoff and Anthony are quite different, and that Anthony's system is "self-contained while van Hoff's system is not." *Id*. at 14. GE also contends that one would need to change the principle of operation of Anthony to combine it with van Hoff, because Anthony's text to be annotated is stored directly in a database, whereas van Hoff's text to be annotated is not stored in the local database, but rather a link to the text is stored. *Id*. at 15.

We are not persuaded by GE's arguments, as they narrowly focus on small differences between van Hoff and Anthony and fail to consider the collective teachings of van Hoff and Anthony from the perspective of one of

ordinary skill in the art. *See KSR*, 550 U.S. at 420 ("[F]amiliar items may have obvious uses beyond their primary purpose, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle."); *In re Heck*, 699 F.2d 1331, 1333 (Fed. Cir. 1983); *In re Lemelson*, 397 F.2d 1006, 1009 (CCPA 1968). More importantly, a prior art reference must be considered for everything it teaches by way of technology and is not limited to the particular invention it is describing and attempting to protect. *EWP Corp. v. Reliance Universal Inc.*, 755 F.2d 898, 907 (Fed. Cir. 1985).

As noted by Vibrant Media, there is significant consistency and overlap between the systems in van Hoff and Anthony. Pet. 18–19, 24; Pet. Reply 4. For instance, van Hoff's proxy server and annotation directory may be located on the same platform as the client or on a computer, such as Web server 104, different from the client on which the document request was initiated. Ex. 1004, 5:3–10, figs. 1–2. Anthony describes a computer system in a network, in which "the store of data in the form of a database may be centrally located, with each network user having access to the information therein." Ex. 1005, 3:36–48.

Further, Anthony discloses that:

> [T]he invention advantageously provides *links*, known as Auto_Hyperlinks™, meaning that the word or phrase in the text found to be a match with a topic name is highlighted on the display, and linked to the topic to which the topic name refers. . . . The link is made with reference to *the database which stores* the topic text, reference name and other *identifiers*.

> *Such identifiers note the location of the data for each topic, and provide the navigational links for the hypertext jumps*.

Pet. 24–27, Pet. Reply 5 (citing Ex. 1005, 5:5–18 (emphases added)). Therefore, GE's arguments do not undermine Vibrant Media's rationales to combine the teachings of van Hoff and Anthony, because the cited references pertain to storing hyperlinks in a database and achieving dynamic hyperlinking automatically.

GE also relies on the principle set forth in *In re Ratti*, 270 F.2d 810, 813 (CCPA 1959), to substantiate its position that "one would be changing the principle of operation of Anthony in order to combine it with van Hoff." PO Resp. 15, 19 ("If the proposed modification or combination of the prior art would change *the principle of operation of the prior art invention being modified*, then the teachings of the references are not sufficient to render the claims prima facie obvious" (emphasis added)). That argument, however, is inapposite in the context of the particular facts in the instant proceeding. Notably, Vibrant Media proposes to modify van Hoff (the primary reference, i.e., "the prior art invention being modified"), in light of Anthony's teaching of topic or reference names (i.e., class codes—a code that identifies a particular subject area). GE does not explain sufficiently why *using class codes* in the van Hoff's annotation directories would change impermissibly van Hoff's principle of operation—adding hyperlinks into documents automatically. In fact, the proposed modification would improve van Hoff's system to provide hyperlinks (destination addresses) dynamically based on topics that are relevant to the content in the documents. *See In re Umberger*,

407 F.2d 425, 430–31 (CCPA 1969) (finding *Ratti* inapplicable where the modified apparatus will operate "on the same principles as before").

GE also argues that "there is no evidence to support a finding that one of ordinary skill in the art would have combined van Hoff and Anthony," because van Hoff already provided pattern matching, and Anthony's topics also corresponded to linkable character strings. PO Resp. 15. However, that argument incorrectly assumes that Vibrant Media's proposed combination is merely to solve the problem of inserting destination addresses in documents automatically. As noted by Vibrant Media, the combination of van Hoff and Anthony would have provided dynamically destination addresses that are also *relevant to the content in the documents*. Pet. Reply 6; Pet. 27–30.

For the foregoing reasons, we agree with Vibrant Media that one of ordinary skill in the art at the time of the invention would have recognized that a combination of Anthony's topic or reference names (class codes) with van Hoff's association of a character string to multiple topics and source documents is no more than a combination of familiar elements that would yield "predictable results of achieving dynamic hyperlinking and making those hyperlinks relevant" (Pet. Reply 7). Put simply, such a combination merely is a predictable use of prior art elements according to their established functions—an obvious improvement. *KSR*, 550 U.S. at 417.

Major class code

Claim 3 recites:

> wherein at least some of said linkable character strings in said annotation database have an associated *major class code*,

further comprising:

> qualifying means associated with said annotation database for qualifying the matching linkable character string according to qualification criteria which requires the *major class code* of the matching linkable character string to match a *preferred major class code*.

Ex. 1001, 25:46–53 (emphases added). Claims 4–5 and 9–11 recite similar features. *Id*. at 25:54:62, 27:1–28:5.

In its Petition, Vibrant Media asserts that van Hoff, in combination with Anthony, describes "an associated *major class code*" because van Hoff discloses "[t]he annotation including hypertext links" and "the link may reflect a hierarchical cross-reference list in order of increasing specificity such as: '*medical*' . . . ." Pet. 39 (citing Ex. 1004, 8:49–54 (emphasis added)). Vibrant Media further maintains that van Hoff, in combination with Anthony, discloses "the use of relevance indicators for indicating the closeness or relevance of match patterns to a topic area, and a merger procedure for qualifying a match pattern as having a relevance indicator that meets a relevance threshold of a broad topic area (preferred major class code)." *Id*. at 39–40 (citing Ex. 1004, 8:39–40 ("Hypertext links may also contain a hierarchy of relevance indicators based on predetermined relevance rules."); *id.* at 10:65–11:16 ("[T]he document merger procedure 122 looks for partial matches . . . that meet[] a threshold match requirement . . . only annotations with an assigned relevance value equal to or higher than the relevance threshold . . . are added to user requested documents.")).

In response, GE argues that the combination of references does not teach a "major class code" and a "preferred major class code" because *the relevance indicator of van Hoff is not a major class code*. PO Resp. 24–25 (citing Ex. 2013 ¶ 37). In particular, GE alleges that "Dr. Hellman is using the terminology of 'major' and 'broad' to improperly connote a hierarchy where 'major class code' does not connote a hierarchy as 'major class codes' can be used without minor class codes and are therefore not defined by any relationship to minor class codes." *Id*. at 25 (citing Ex. 1001, 19:41–42).

Although we agree with GE that a major class code does not connote a hierarchy and it can be used without minor class codes, we observe that neither the claim term "major class code" nor other claim language precludes an annotation including hypertext links provided in a *hierarchical format*. As discussed above, we have adopted GE's proposed construction as the broadest reasonable interpretation for the claim term "major class codes"—"class codes that can designate or identify a particular context or *subject area*" (PO Resp. 10 (emphasis added)). The topic "*medical*" as disclosed in van Hoff is a *subject area*, and, therefore, meets the definition of the claim term "major class code."

In addition, we agree with Vibrant Media that "van Hoff's relevance threshold can be a user-defined relevance value, set as a high relevance threshold for instance which would be the 'preferred major class code,'" and "van Hoff's merger procedure applies this relevance threshold to qualify a corresponding topic's relevance value for a matching character string." Pet. Reply 13; Pet. 39–40 (citing Ex. 1004, 8:39–40, 10:65–11:16). Indeed, van

Hoff describes that, when the user specifies a relevance threshold to the merger procedure, only annotations with an assigned relevance value equal to or higher than the relevance threshold are added to user requested documents. Ex. 1004, 11:10–16.

For the foregoing reasons, we determine that Vibrant Media demonstrates sufficiently that van Hoff, in combination with Anthony, describes the "major class code" features, as recited in claims 3–5 and 9–11.

Objective evidence of nonobviousness

Factual inquiries for an obviousness determination include secondary considerations based on evaluation and crediting of objective evidence of nonobviousness. *Graham*, 383 U.S. at 17. Notwithstanding what the teachings of the prior art would have suggested to one of ordinary skill in the art at the time of the '074 patent's invention, the totality of the evidence submitted, including objective evidence of nonobviousness, may lead to a conclusion that the claimed invention would not have been obvious to one of ordinary skill in the art. *In re Piasecki*, 745 F.2d 1468, 1471–1472 (Fed. Cir. 1984). Secondary considerations may include any of the following: long-felt but unsolved needs, failure of others, unexpected results, commercial success, copying, licensing, and praise.

Here, GE takes the position that the commercial success of Vibrant Media's products shows that the subject matter of GE's claims would not have been obvious over the proposed combination of van Hoff and Anthony. PO Resp. 23. As support, GE proffers seven of Vibrant Media's press releases (Exs. 2001–2008), the Declaration of Dr. Mayer-Patel (Ex. 2013

¶¶ 28–34), and other evidence (Exs. 2015–2019). PO Resp. 19–23.

Vibrant Media responds that GE has not shown commercial success of any system. Pet. Reply 11. Vibrant Media also alleges that GE has not shown a nexus between the purported commercial success and Vibrant Media's system allegedly practicing the claims of the '074 patent. *Id*. at 12.

We agree with Vibrant Media. GE's supporting evidence does not add sufficiently to the record to warrant a conclusion of nonobviousness, because the evidence before us does not demonstrate adequately that Vibrant Media's system was commercially successful.

To substantiate its position that Vibrant Media's system was commercially successful, GE directs our attention to several of Vibrant Media's press releases. PO Resp. 20–22 (Exs. 2001–2008). According to GE, Vibrant Media's press releases show that: (1) Vibrant Media has "over 6,600 premium publishers and more than 300 million unique users per month by 2013" (*id*. at 20 (citing Ex. 2006)); (2) "69% [of the 500 women surveyed] report[ed] being more likely to pay attention to ads relevant to what they are reading" (*id*. at 21 (citing Ex. 2002)); and (3) "online video ad spending is projected to reach $ 7.1 billion by 2015 up from $ 2.2 billion spent in 2011" (*id*. (citing Ex. 2003)).

That evidence does not establish sufficiently, however, that the alleged sales numbers constitute commercial success when considered in relation to overall market share. In particular, it is unclear whether the numbers of publishers and users are "sales numbers" or revenue amounts. GE does not provide the fee amounts that Vibrant Media charges the

publishers and users. More importantly, there is no indication that the alleged numbers of publishers and users represent a substantial quantity in the overall market share. Accordingly, GE's objective evidence is accorded little weight. *See Cable Elec. Prods., Inc. v. Genmark, Inc.*, 770 F.2d 1015, 1026–27 (Fed. Cir. 1985) (finding that sales of 5 million units represent a minimal showing of commercial success because "without further economic evidence . . . it would be improper to infer that the reported sales represent a substantial share of any definable market"); *see also In re Baxter Travenol Labs*, 952 F.2d 388, 392 (Fed. Cir. 1991) ("Information solely on numbers of units sold is insufficient to establish commercial success.").

After weighing the evidence of obviousness and nonobviousness of record, on balance, we conclude that the strong evidence of obviousness outweighs the weak evidence of nonobviousness.

Conclusion

For the foregoing reasons, we determine that Vibrant Media has demonstrated by a preponderance of evidence that claims 1–5 and 7–11 would have been obvious over the combination of van Hoff and Anthony.

D. Claims 6 and 12 – Obvious over van Hoff, Anthony, Kleinberg, and Borden

Vibrant Media asserts that claims 6 and 12 are unpatentable under 35 U.S.C. § 103(a) over van Hoff, Anthony, Kleinberg, and Borden. Pet. 18, 40–46, 51. In support of the asserted ground of unpatentability, Vibrant Media provides detailed explanations as to how each claim element is met

by the combination of van Hoff, Anthony, Kleinberg, and Borden. *Id*. Vibrant Media also directs our attention to the Declaration of Dr. Hellman. *Id*. (citing Ex. 1003 ¶¶ 74–85).

In its Patent Owner Response, GE relies upon essentially the same arguments presented with respect to claims 1–5 and 7–11, alleging that one of ordinary skill in the art would not have combined van Hoff and Anthony. PO Resp. 28. As discussed above, we have addressed those arguments and determined that they are unavailing.

GE further maintains that the combination of prior art references does not describe the "filtering" features, as recited in claims 6 and 12. PO Resp. 28–30. For the reasons stated below, we are not persuaded. Rather, we determine that, in light of the evidence before us, Vibrant Media has demonstrated sufficiently that the combination of van Hoff, Anthony, Kleinberg, and Borden would have suggested the "filtering" features to a person of ordinary skill in the art.

Claim 6 recites the following features:

> said assigning means is adapted to communicate with a *search engine* for searching an information network using particular ones of said linkable character strings as search terms to obtain particular ones of said corresponding destination addresses; and
>
> a *destination filter* associated with said assigning means for filtering destination addresses obtained from said search engine according to preference criteria to obtain said destination addresses which are assigned to said linkable character strings.

Ex. 1001, 26:17–27 (emphases added). Claim 12 recites similar features.

In its Petition, Vibrant Media asserts that van Hoff, in combination with Anthony, Kleinberg, and Borden, "teaches a directory generator in communication with a web information server 104 (FIG. 1), that generates a cross-reference directory based on documents that passes through the web information server 104." Pet. 44 (citing Ex. 1004, 10:20–28, 10: 2–6). Vibrant Media also asserts that Kleinberg discloses that search engines using keywords or character strings as search terms for obtaining web pages and their destination addresses (e.g., from the Internet) were known in the art. Pet. 45 (citing Ex. 1006, 3:19–29, 3:40–51, 4:34–36, 4:43–48).

Given the disclosures of van Hoff and Kleinberg, Vibrant Media maintains that "it would have been obvious to a person of ordinary skill in the art to have web information server 104 be a search engine that employs keyword search techniques to track or obtain addresses of such documents, especially when van Hoff already discloses that character/word-based search strategies and search engines are known." Pet. 45 (citing Ex. 1004, 7:1–7, 7:43–55). Vibrant Media further contends that van Hoff provides reasons to "combine with known elements according to known methods (search engine and character/word-based search strategies) from Kleinberg, to yield the predictable result of obtaining relevant web pages and addresses." *Id*. Vibrant Media also submits that "van Hoff teaches that each cross reference document source 194 (destination address) can be assigned a relevance indicator (RI)," and that "the use of a relevance threshold with the assigned relevance indicators, to 'filter' candidate destination addresses and their

match patterns for actual annotation." *Id*. at 45–46 (citing Ex. 1004, 10:65–11:16; Ex. 1003 ¶¶ 83–84).

In response, GE argues that the claims are directed to filtering *what is being put into the database*, but the relevant indicators in van Hoff operate on the processing of *what is read out*. PO Resp. 29. According to GE, the claims require that "the destination addresses are obtained from the search engine, filtered, and the filtered ones 'are assigned to said linkable character strings.'" *Id*.

We are not persuaded by GE's arguments. As Vibrant Media notes, Dr. Hellman did not cite the relevant indicators in van Hoff for the narrow context of filtering addresses that are read out from a database, as alleged by GE. Pet. Reply 14–15 (citing Ex. 1003 ¶¶ 81–82). Indeed, Dr. Hellman relies upon the teaching of van Hoff's relevant indicators as an exemplary way to filter destination addresses of web pages obtained from the search engine to be *put into the directories* (i.e., the database), according to preference criteria that include a relevance threshold. *Id*.

As Dr. Hellman points out, Kleinberg recognizes the common problem that search results often yield a large set of destination addresses. Ex. 1003 ¶ 82; *see also, e.g.*, Ex. 1006, 3:40–54 ("[A] search based on term-matching can easily return several thousand pages . . . . This results in a volume of output much greater than a human user can digest")). Kleinberg specifically describes techniques to identify relevant web pages from the entire set of web pages obtained from the search engine. Ex. 1006, 3:19–29, 3:40–51, 4:34–36, 4:43–48. In addition, van Hoff discloses that the

relevance indicator may identify the information as having high relevance or low relevance, such as a relevance indicator based on a numerical scale (e.g., relevance from 1–10, where relevance 1 is the highest relevance). Ex. 1004, 8:39–44. In light of those prior art teachings, one of ordinary skill in the art at the time of the invention would have appreciated that the result obtained from the search engine would be filtered—such as reducing several thousand pages to ten relevant web pages, a number that the user can digest—when the directory is generated.

Based on the record before us, including the evidence of non-obviousness presented by GE and the evidence of obviousness presented by Vibrant Media, we conclude that Vibrant Media has demonstrated by a preponderance of the evidence that claims 6 and 12 would have been obvious over the combination of van Hoff, Anthony, Kleinberg, and Borden.

E. Claim 9 – Obvious over van Hoff, Anthony, and Logue

Vibrant Media asserts that claim 9 is unpatentable under 35 U.S.C. § 103(a) as obvious over van Hoff, Anthony, and Logue. Pet. 18, 40–44, 48–50. In support of the asserted ground of unpatentability, Vibrant Media provides detailed explanations as to how each claim element is met by the combination of van Hoff, Anthony, and Logue. *Id*. Vibrant Media also directs our attention to the Declaration of Dr. Hellman. *Id*. (citing Ex. 1003 ¶¶ 74–80).

In response, GE essentially presents the same arguments in connection with Vibrant Media's asserted ground based on the combination of van Hoff and Anthony, against claim 3–5 and 9–11, regarding the "major class code"

features and reasons to combine the teachings of van Hoff and Anthony. *Compare* PO Resp. 30–31 *with* PO Resp. 24–25. As discussed above, we have addressed those arguments and determined that they are unavailing.

Based on the record before us, including the evidence of non-obviousness presented by GE and the evidence of obviousness presented by Vibrant Media, we conclude that Vibrant Media has demonstrated by a preponderance of the evidence that claim 9 would have been obvious over the combination of van Hoff, Anthony, and Logue.

F. Vibrant Media's Motion to Exclude

Vibrant Media seeks to exclude GE's objective evidence of nonobviousness (Exs. 2001–08, 2015–21, 2023–34, 2013 ¶¶ 30–34, 2036 ¶¶ 6–8). Paper 30 ("Pet. Mot."). GE opposes Vibrant Media's Motion to Exclude Evidence. Paper 39. In response, Vibrant Media filed a Reply to GE's Opposition to its Motion to Exclude Evidence. Paper 42.

On this record, it is not necessary for us to assess the merits of Vibrant Media's Motion to Exclude. GE filed press releases, HTML codes, screenshots, and Dr. Mayer-Patel's testimony (Exs. 2001–08, 2015–21, 2023–34, 2013 ¶¶ 30–34, 2036 ¶¶ 6–8) as evidence of nonobviousness to rebut Vibrant Media's assertion that claims 1–5 and 7–11 would have been obvious over the various combinations of van Hoff, Anthony, Kleinberg, Borden, and Logue. PO Resp. 19–23. As discussed above, even without excluding GE's supporting evidence, we have determined that Vibrant Media has demonstrated by a preponderance of the evidence that claims 1–12 are unpatentable over the combinations of cited prior art.

Accordingly, Vibrant Media's Motion to Exclude Evidence is *dismissed* as moot.

G. GE's Motion to Exclude

GE seeks to exclude numerous portions of Dr. Hellman's Rebuttal Declaration (Ex. 1014). Paper 33 ("PO Mot."). Vibrant Media opposes GE's Motion to Exclude Evidence. Paper 38 ("Opp."). In response, GE filed a Reply to Vibrant Media's Opposition to its Motion to Exclude Evidence. Paper 43 ("PO Reply").

As the movant, GE has the burden of proof to establish that it is entitled to the requested relief. *See* 37 C.F.R. § 42.20(c). For the reasons stated below, GE's Motion to Exclude Evidence is *denied*.

1. Rebuttal Declaration

In its Motion to Exclude Evidence, GE essentially argues that Dr. Hellman's Rebuttal Declaration is improper rebuttal evidence that should have been presented with the Petition. PO Mot. 1–4. GE further argues that Dr. Hellman's Rebuttal Declaration should be excluded under Federal Rules of Evidence 403 and 602[4] because GE's expert did not have an opportunity to address the new testimony. PO Mot. 4. Vibrant Media counters that Dr. Hellman's Rebuttal Declaration should not be excluded, arguing that his testimony merely elaborates on his earlier opinions and responds to GE's arguments. Opp. 1–9.

[4] As stated in 37 C.F.R. § 42.62, the Federal Rules of Evidence generally apply to an *inter partes* review.

Having considered the parties' contentions and evidence, we are not persuaded that Dr. Hellman's Rebuttal Declaration should be excluded. At the outset, GE's motion contains improper arguments. PO Mot. 1–4. Notably, GE argues that "[p]ortions of paragraphs 4, 10, 13, 14, 15, 18, 20, 26, 28 and 30 [of Dr. Hellman's Rebuttal Declaration] are untimely . . . as they belatedly present opinions which were required to be disclosed in Petitioner's original petition." *Id*. A motion to exclude evidence is not a mechanism to argue that a reply contains new arguments or relies on evidence necessary to make out a prima facie case. A motion to exclude evidence, for instance, must state why the evidence is inadmissible (e.g., based on relevance or hearsay), identify the corresponding objection in the record, and explain the objection. *See* 37 C.F.R. § 42.64(c); Office Patent Trial Practice Guide, 77 Fed. Reg. at 48,767.

In any event, the mere fact that the Rebuttal Declaration cites to evidence that was not discussed specifically in the Petition is insufficient to establish the impropriety of such evidence, much less inadmissibility under the Federal Rules of Evidence. The very nature of a reply is to respond to the Opposition, which in this case is the Patent Owner Response. *See* 37 C.F.R. § 42.23(b). The need for relying on evidence not previously discussed in the Petition may not exist until a certain point has been raised in the Patent Owner Response. Much depends on the specific arguments made in the Patent Owner Response. As the movant, GE has the burden of proof to establish that it is entitled to the requested relief. 37 C.F.R. § 42.20(c). Here, GE's motion does not contain any meaningful discussion of the

arguments that GE has made in its Patent Owner Response, which reasonably might or might not have triggered Vibrant Media's reliance on the testimony GE now seeks to exclude. Without such discussion, GE has not shown that Dr. Hellman's Rebuttal Declaration exceeds the proper scope of reply evidence.

In addition, GE does not articulate a persuasive reason why we should exclude paragraph 4 of Dr. Hellman's Rebuttal Declaration (PO Mot. 2). Dr. Hellman's rebuttal testimony simply addresses GE's argument presented in the Patent Owner Response (PO Resp. 4) that Dr. Hellman's initial Declaration does not use the "preponderance of the evidence" standard. Moreover, we do not agree with GE that 35 U.S.C. § 316(e) requires an expert declaration to recite or apply the "preponderance of the evidence" standard expressly in order for the expert testimony to be accorded weight. Rather, it is within our discretion to assign the appropriate weight to be accorded to evidence based on whether the expert testimony discloses the underlying facts or data on which the opinion is based. *See* 37 C.F.R. § 42.64(a).

To support its view that we should exclude paragraphs 18 and 20 of Dr. Hellman's Rebuttal Declaration, GE argues that "what could have been implemented" or "how things 'can be configure[d]' that are not actually disclosed in the references" are irrelevant to the proceeding. PO Mot. 4. We do not find that argument persuasive. Dr. Hellman's testimony (Ex. 1014 ¶¶ 18, 20) was submitted appropriately to respond to GE's arguments presented in its Patent Owner Response—"[o]ne of ordinary skill

in the art, in fact, would not have 'appreciated that a character string may match.'" (PO Resp. 17–19). Dr. Hellman's testimony provides examples to show that a one-to-many relationship was well known to a person of skill in the art, and explains what van Hoff actually discloses and what a person of skill in the art at the time of the invention would have understood in light of van Hoff's teachings. Ex. 1014 ¶¶ 18, 20. Dr. Hellman's testimony merely confirms the level of ordinary skill in the art—an issue that was raised by GE in its Patent Owner Response (PO Resp. 17–19).

For the foregoing reasons, we decline to exclude paragraphs 4, 10, 13, 14, 15, 18, 20, 26, 28, and 30 of Dr. Hellman's Rebuttal Declaration.

2. Whether Dr. Hellman is Qualified as an Expert

GE asserts that paragraph 13 of Dr. Hellman's Rebuttal Declaration should be excluded under Federal Rules of Evidence 701 and 702 because Dr. Hellman is not qualified as an "advertising expert" to provide testimony regarding advertisement—"it is of course a common market demand that an advertisement be placed in a *relevant* location." (Ex. 1014 ¶ 13 (emphasis added)). PO Mot. 4–5. In response, Vibrant Media counters that Dr. Hellman merely "illustrates a well-known problem by noting the common knowledge that advertisers have always sought to place advertisement in relevant location, whether that is the location of a physical billboard or a destination address." *Id*. at 9–10.

Upon consideration of the parties' contentions and evidence on the record before us, we disagree with GE that an expert could not resort to common sense or common knowledge of one of ordinary skill in the art.

According to Dr. Hellman's curriculum vitae, he earned a Bachelor of Arts in Electrical Engineering and Computer Science, and a Master of Science in Electrical Engineering, as well as a Doctor of Philosophy in Electrical Engineering. Ex. 1003 ¶ 7. Furthermore, Dr. Hellman has 17 years of experience in the electronic publishing and library technology industries, including research and development that involved hyperlinked technology. *Id*. ¶ 5. As noted by Vibrant Media, Dr. Hellman simply provides an example to illustrate that "one problem to be solved was providing destination addresses that are relevant to the content of the article" and a person of ordinary skill in the art would have understood that problem. Opp. 9–10. On this record, we determine that Dr. Hellman is qualified to provide an opinion that "it is of course a common market demand that an advertisement be placed in a relevant location." Ex. 1014 ¶ 13.

For the foregoing reasons, we decline to exclude Dr. Hellman's testimony regarding placing advertisement in a relevant location.

3. Expert's Choice of Words

GE argues that paragraphs 12, 13, 16, 20, and 22 of Dr. Hellman's Rebuttal Declaration should be excluded because his testimony includes certain wordings—"within the grasp of one of ordinary skill in the art," "being deterred," and being "not excluded"—that are not applicable legal standards under 35 U.S.C. § 103(a). PO Mot. 5. Vibrant Media counters that expert testimony should not be excluded for using words that are not used in 35 U.S.C. § 103(a). Opp. 11–12.

We agree with Vibrant Media. An expert may express his or her opinion using words that are not used expressly in the statute. Here, Dr. Hellman's testimony, concerning whether a person of ordinary skill in the art would have combined the cited prior art references, and what such an artisan would have appreciated in light of the prior art teachings, was submitted appropriately in response to GE's arguments (PO Resp. 14–18). Dr. Hellman's choice of words for formulating his opinion on the level of ordinary skill in the art is an issue directed to sufficiency of evidence to prove a particular fact, and not an issue of admissibility.

A motion to exclude is not the proper vehicle to challenge the sufficiency of the evidence to prove a particular fact. *See* Office Patent Trial Practice Guide, 77 Fed. Reg. at 48,767. Rather, it is within our discretion to assign the appropriate weight to be accorded to evidence. *See, e.g.*, *Yorkey v. Diab*, 601 F.3d 1279, 1284 (Fed. Cir. 2010) (holding the Board has discretion to give more weight to one item of evidence over another "unless no reasonable trier of fact could have done so"); *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1368 (Fed. Cir. 2004) ("[T]he Board is entitled to weigh the declarations and conclude that the lack of factual corroboration warrants discounting the opinions expressed in the declarations."); *Velander v. Garner*, 348 F.3d 1359, 1371 (Fed. Cir. 2003) ("In giving more weight to prior publications than to subsequent conclusory statements by experts, the Board acted well within [its] discretion.").

For the foregoing reasons, we decline to exclude paragraphs 12, 13, 16, 20, and 22 of Dr. Hellman's Declaration.

4. Legal Opinions

GE argues that paragraphs 5, 6, and 7 of Dr. Hellman's Rebuttal Declaration should be excluded under Federal Rules of Evidence 701 and 702, because Dr. Hellman provides legal opinions. PO Mot. 5–6.

That argument is not persuasive. We recognize that expert testimony on the ultimate "legal conclusion of obviousness is neither necessary nor controlling." *Avia Grp. Int'l, Inc. v. L.A. Gear Cal., Inc.*, 853 F.2d 1557, 1564 (Fed. Cir. 1988). Nevertheless, it is within our discretion to assign the appropriate weight to be accorded to evidence. *See, e.g.*, *Donnelly Garment Co. v. NLRB*, 123 F.2d 215, 224 (8th Cir. 1942) ("One who is capable of ruling accurately upon the admissibility of evidence is equally capable of sifting it accurately after it has been received . . . ."). We are capable of taking into account the support for and the reliability and persuasiveness of a witness's testimony on a particular issue, if any, when weighing all of the testimony of the witness.

For the foregoing reasons, we decline to exclude any portion of Dr. Hellman's Rebuttal Declaration.

5. Conclusion

For the reasons stated above, GE has not met its burden to demonstrate that Dr. Hellman's Rebuttal Declaration (Ex. 1014) is inadmissible. GE's Motion to Exclude Evidence is *denied*.

III. CONCLUSION

Vibrant Media has met its burden of proof by a preponderance of the evidence in showing that claims 1–12 the '074 patent are unpatentable based on the following grounds of unpatentability:

Claim	Basis	References
1–5, 7–11	§ 103(a)	van Hoff and Anthony
6, 12	§ 103(a)	van Hoff, Anthony, Kleinberg, and Borden
9	§ 103(a)	van Hoff, Anthony, and Logue

IV. ORDER

In consideration of the foregoing, it is

ORDERED that claims 1–12 of the '074 patent are held unpatentable;

FURTHER ORDERED that Vibrant Media's Motion to Exclude Evidence is *dismissed* as moot;

FURTHER ORDERED that GE's Motion to Exclude Evidence is *denied*; and

FURTHER ORDERED that, because this is a final written decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

WEATHERLY, *Administrative Patent Judge, dissenting-in-part.*

I concur in the majority's reasoning and conclusion that claims 1–8 and 12 are unpatentable, but I respectfully dissent from the majority's decision regarding the unpatentability of claims 9–11. Briefly, because I conclude that claims 9–11 are indefinite under 35 U.S.C. § 112, second paragraph, I would terminate the proceeding with respect to claims 9–11, rather than finding the claims unpatentable under 35 U.S.C. § 103.

We previously noted that whether claims 9–11 are directed to an apparatus or a method is unclear and that these claims, therefore, may be indefinite. Dec. 6–7. We suggested that GE "should provide sufficient explanation or evidence as to why those claims are not indefinite." *Id*. at 7. We identified *In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d 1303 (Fed. Cir. 2011) and *IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377 (Fed. Cir. 2005) as standing for the proposition that claims that recite both apparatus and method of use steps are indefinite, and thus, unpatentable under 35 U.S.C. § 112, second paragraph. Dec. 7.

GE responded by asserting that a skilled artisan would interpret claims 9–11 to be directed solely to a system. PO Resp. 4–7. More specifically, GE contends that a skilled artisan would interpret the claims by reading recited method steps as elements of the claimed system that were written in a means-plus-function format. *Id*. The table below illustrates the manner in which GE contends that a skilled artisan would interpret the problematic claim language with GE's suggested alterations highlighted for emphasis.

Actual claim language	GE's suggested interpretation
9. A computer system . . . comprising the further steps of: qualifying the matching linkable character string according to qualification criteria which requires the major class code of the matching linkable character string to match a preferred major class code.	9. A computer system . . . ***further comprising: qualifying means for qualifying*** the matching linkable character string according to qualification criteria which requires the major class code of the matching linkable character string to match a preferred major class code.
10. The method of claim 9, comprising the further steps of: receiving an administrator input which designates said preferred major class code.	10. The method of claim 9, ***further comprising: interface means for receiving*** an administrator input which designates said preferred major class code.
11. The method of claim 9, comprising the further step of: receiving a signal indicative of said preferred major class code from a central computer via a communication network.	11. The method of claim 9, further comprising: ***receiving means for receiving*** a signal indicative of said preferred major class code from a central computer via a communication network.

PO Resp. 5–7. GE argues that, because claim 9 "is directed to a system," a skilled artisan "would have understood that the only way that" the claim language in the left hand column of the table "could have been interpreted" would be as shown in the right hand column. *Id*. (citing Ex. 2013 ¶¶ 45, 48, and 49). GE concludes, without discussing *IPXL* or *Katz*, that claims 9–11 should be interpreted "to be definite." PO Resp. 5–7.

In *Katz*, the claims at issue recited "interface means for providing automated voice messages . . . to certain of said individual callers, wherein said certain of said individual callers digitally enter data." *Katz*, 639 F.3d at 1318. The district court found the claims to be invalid as indefinite under § 112, second paragraph. *Id.* (citing *IPXL*, 430 F.3d at 1384). The Federal Circuit affirmed noting that "Katz's claims, however, create confusion as to when direct infringement occurs because they are directed both to systems and to actions performed by 'individual callers.' Katz's claims therefore fall squarely within the rationale of *IPXL* and are indefinite." *Katz*, 639 F.3d at 1318.

Here, claims 9–11 also fall within the rationale of *IPXL* and *Katz* and, thus, are indefinite. Claim 9 is directed to "[a] computer system including a central computer adapted to communicate with a plurality of primary computers via a communication network." Ex. 1001, 27:1–3. Claim 9 also recites six components of the system, but concludes with the following method step: "comprising the further steps of: qualifying the matching linkable character string according to qualification criteria which requires the major class code of the matching linkable character string to match a preferred major class code." *Id.* at 27:5–31. Although claim 9 does not explicitly recite who or what performs the "qualifying" step, the claim also fails to specify which of the previously recited system elements, if any, performs this step. Claims 10 and 11 begin by reciting "[t]he method of claim 9, comprising the further step of" and then recite steps of "receiving an administrator input which designates said preferred major class code"

(claim 10, *id*. at 27:34–35) and "receiving a signal indicative of said preferred major class code from a central computer via a communication network" (claim 11, *id*. at 28:2–4). These claims also fail to specify who or what performs the recited "receiving" steps. Therefore, the claims reach any person or instrumentality that performs the recited method steps.

Each of *Katz* and *IPXL* related to claims directed to a system that further recited method steps performed by a human actor. *IPXL*, 430 F.3d at 1384 (reciting "[t]he system of claim 2 [including an input means] wherein . . . the user uses the input means"); *Katz*, 639 F.3d at 1318 (reciting a system wherein "certain of said individual callers digitally enter data"). The method steps recited in claims 9–11, therefore, encompass any person or system that performs those steps. Because claims 9–11 are broad enough to reach users who perform method steps, I conclude that *IPXL* and *Katz* require that I determine that claims 9–11 are indefinite.

My determination that claims 9–11 are indefinite prevents me from analyzing the patentability of those claims under § 103. When analyzing unpatentability under § 103, "[t]he first step involves the proper interpretation of the claims. The second step involves determining whether the limitations of the claims as properly interpreted are met by the prior art." *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1333 (Fed. Cir. 2002). Because I interpret claims 9–11 to be indefinite, I cannot perform the second step of the unpatentability analysis, determining whether the limitations of the claims are met by the prior art. Thus, I cannot evaluate Vibrant Media's challenge to the patentability of claims 9–11 under § 103.

The majority interprets claims 9–11, "for the purposes of this decision, as requiring both the recited apparatus claim elements and the recited method steps." *Supra* at 9. I disagree with the majority's interpretation because the obviousness determinations must be directed to the claimed invention as a whole, not to any partial invention that does not include all of the limitations of the claim. 35 U.S.C. § 103; *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Furthermore, an obviousness determination based on less than all of the claimed elements is speculative as to the meaning or scope of the claims. *See In re Steele*, 305 F.2d 859, 862–63 (CCPA 1962) (the prior art grounds of unpatentability must fall, *pro forma*, because they are based on speculative assumption as to the meaning of the claims). Without ascertaining the proper claim scope, I cannot conduct a necessary factual inquiry for determining obviousness—ascertaining differences between the claimed subject matter and the prior art. *See Graham*, 383 U.S. at 17–18.

Because I cannot compare claims 9–11 to the prior art that Vibrant Media contends to render those claims unpatentable, I would terminate the proceeding with respect to claims 9–11 under 37 C.F.R. § 42.72, and not issue a final written decision on those claims. For these reasons, I respectfully dissent from the portion of the majority decision that finds claims 9–11 unpatentable under § 103.

IPR2013-00172
Patent 6,092,074

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United States Patent [19]

Rodkin et al.

[11] Patent Number: 6,092,074

[45] Date of Patent: Jul. 18, 2000

[54] **DYNAMIC INSERTION AND UPDATING OF HYPERTEXT LINKS FOR INTERNET SERVERS**

[75] Inventors: **John J. Rodkin**, Chicago, Ill.; **David E. Schmidt**, La Jolla, Calif.

[73] Assignee: **Connect Innovations, Inc.**, Pleasanton, Calif.

[21] Appl. No.: **09/021,331**

[22] Filed: **Feb. 10, 1998**

[51] **Int. Cl.**[7] **G06F 17/30**

[52] **U.S. Cl.** **707/102**; 707/102; 707/101; 709/217; 709/219

[58] **Field of Search** 707/2, 101, 513, 707/501, 10, 102; 709/217, 219

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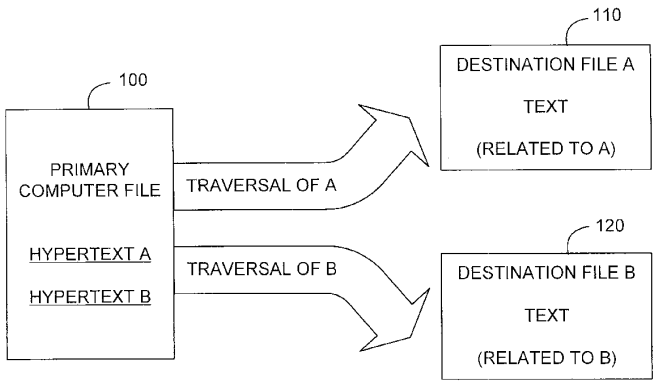
[57] **ABSTRACT**

A system for automatically providing hypertext for character strings of a text file at a content server. A central server provides central control of the links of text files of a plurality of content servers in an information network such as the Internet. The central server intermittently updates each content server with new character strings and/or destination addresses, such as Uniform Resource Locators (URLs). The content servers also update the central server with new character strings. Optionally, each content server can query the central server on a real-time basis to obtain a destination address for a character string which does not have a corresponding valid destination address. The central server responds to such queries by searching its master databases, and using a search engine if required. Hit count data is maintained at the content servers and transmitted to the central server intermittently.

12 Claims, 6 Drawing Sheets



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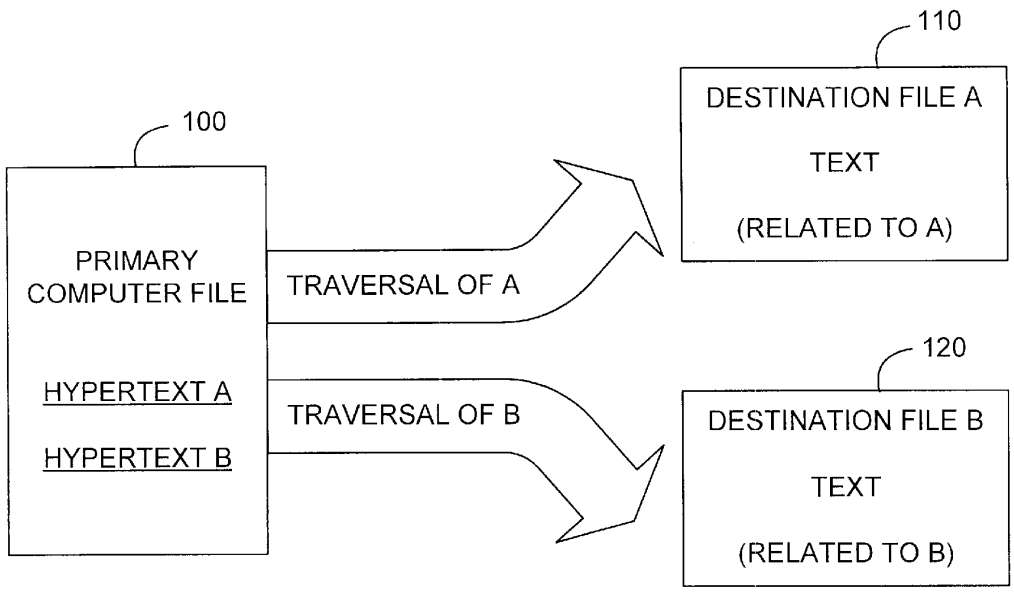

FIG. 1
PRIOR ART

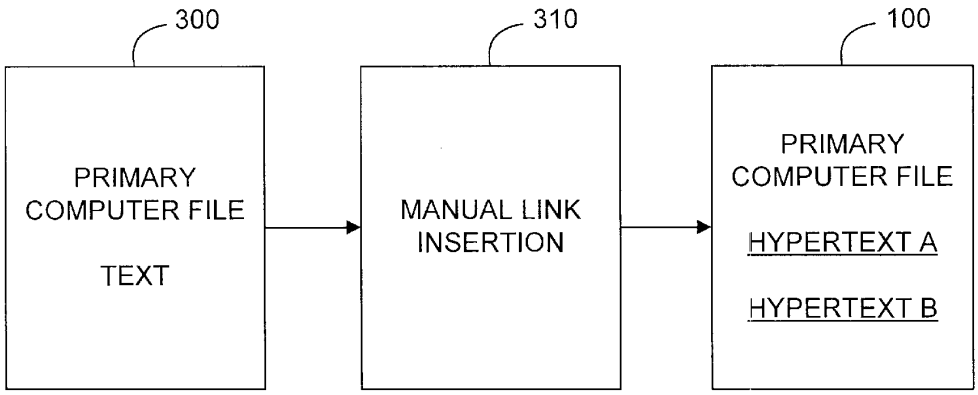

FIG. 3
PRIOR ART

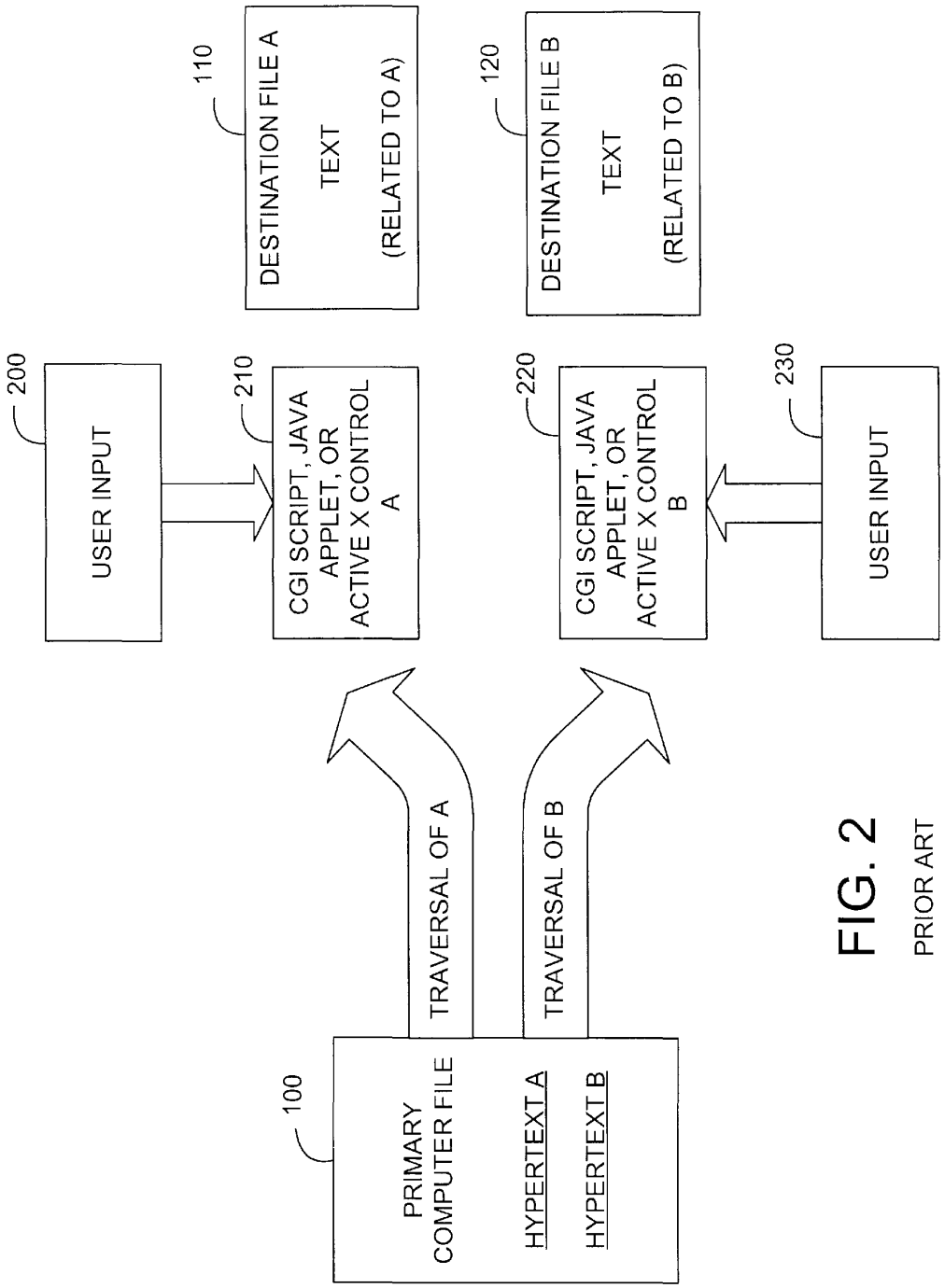

FIG. 2
PRIOR ART

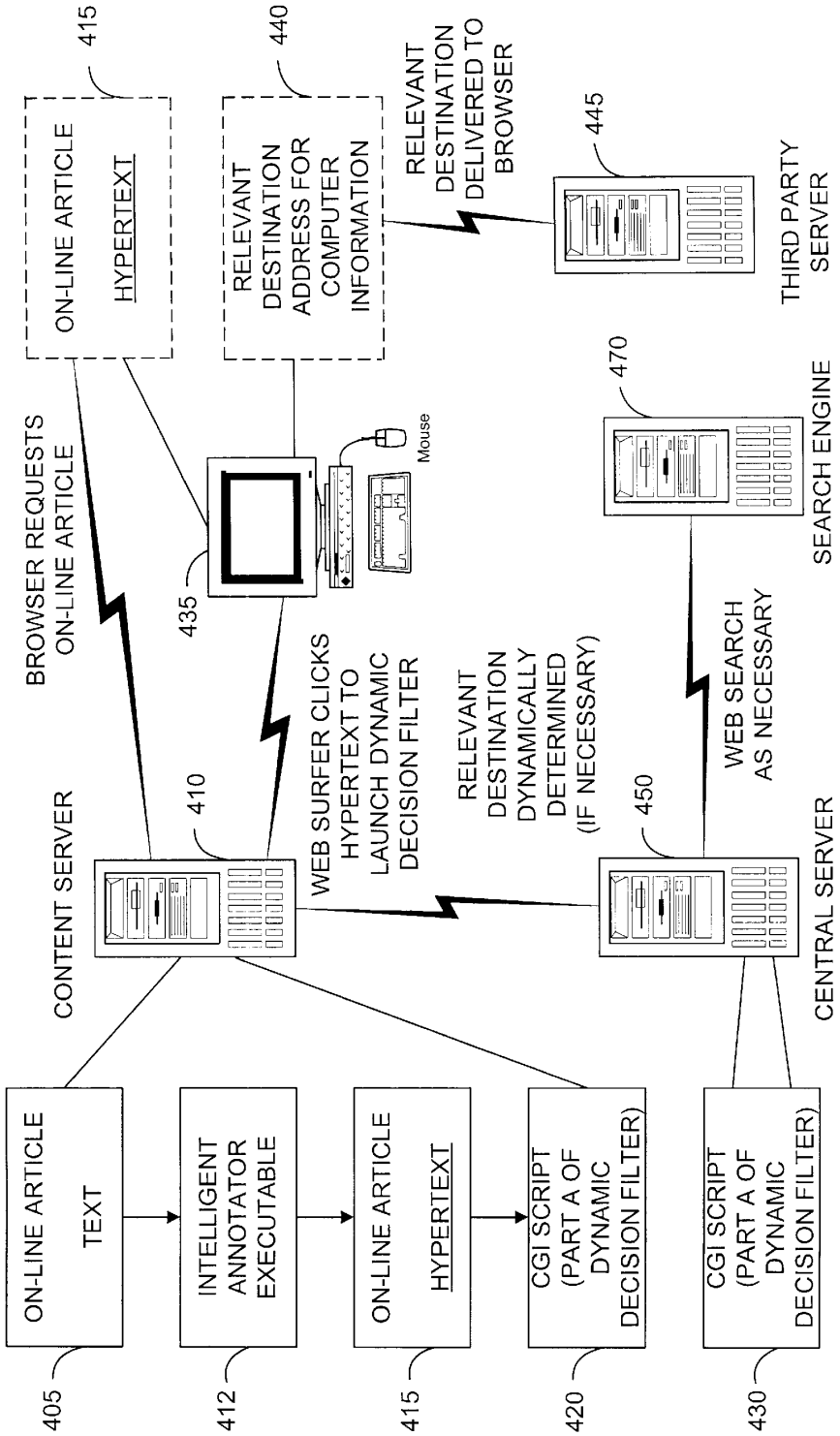
ON-LINE ARTICLE
HYPERTEXT
415
RELEVANT DESTINATION ADDRESS FOR COMPUTER INFORMATION
440
RELEVANT DESTINATION DELIVERED TO BROWSER
445
THIRD PARTY SERVER
470
SEARCH ENGINE
Mouse
435
BROWSER REQUESTS ON-LINE ARTICLE
WEB SURFER CLICKS HYPERTEXT TO LAUNCH DYNAMIC DECISION FILTER
RELEVANT DESTINATION DYNAMICALLY DETERMINED (IF NECESSARY)
WEB SEARCH AS NECESSARY
CONTENT SERVER
410
450
CENTRAL SERVER
ON-LINE ARTICLE
TEXT
405
INTELLIGENT ANNOTATOR EXECUTABLE
412
ON-LINE ARTICLE
HYPERTEXT
415
CGI SCRIPT (PART A OF DYNAMIC DECISION FILTER)
420
CGI SCRIPT (PART A OF DYNAMIC DECISION FILTER)
430

FIG. 4

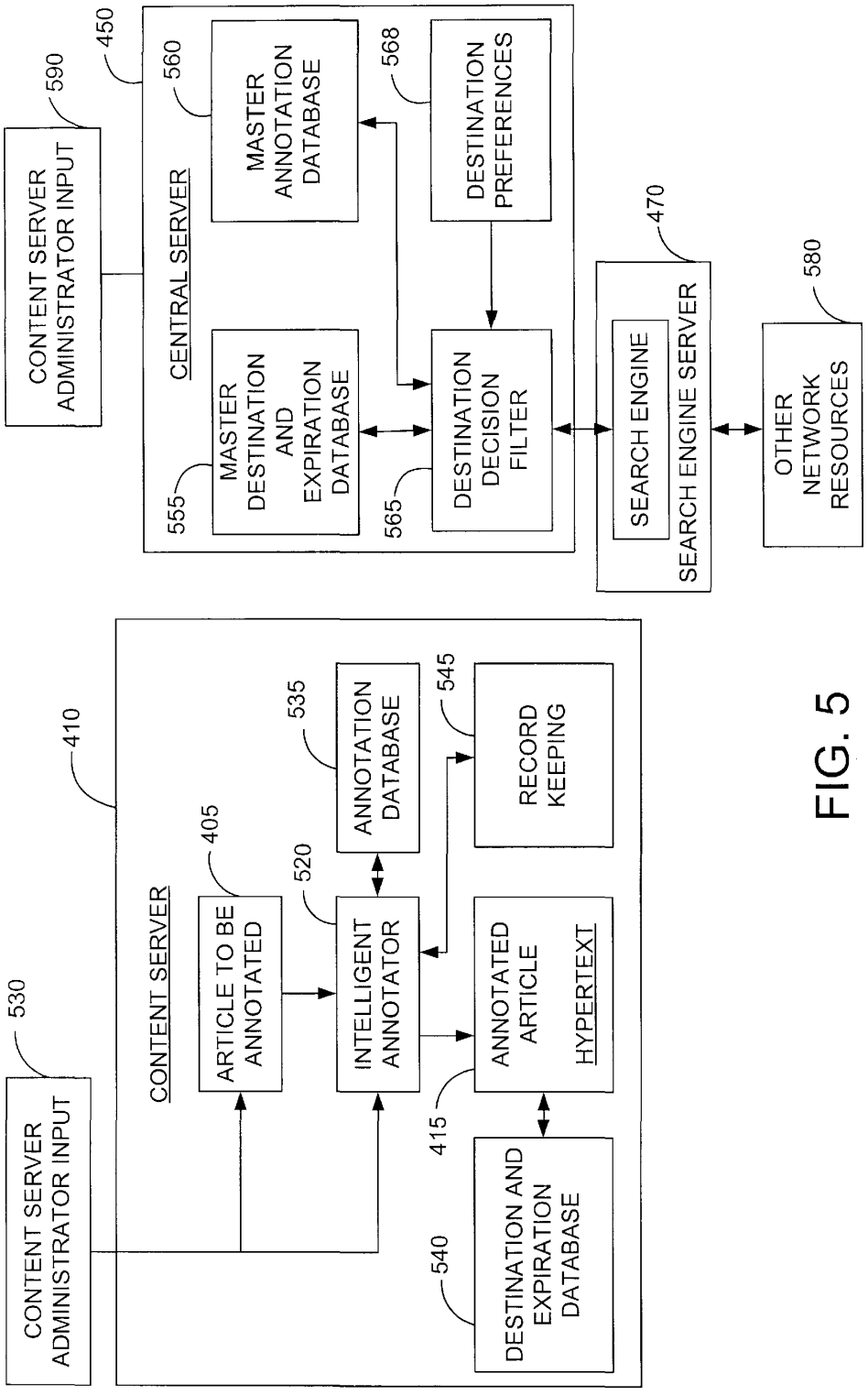
CONTENT SERVER ADMINISTRATOR INPUT
590
450
CENTRAL SERVER
560
MASTER ANNOTATION DATABASE
568
DESTINATION PREFERENCES
555
MASTER DESTINATION AND EXPIRATION DATABASE
565
DESTINATION DECISION FILTER
470
SEARCH ENGINE
SEARCH ENGINE SERVER
580
OTHER NETWORK RESOURCES
410
CONTENT SERVER
405
ARTICLE TO BE ANNOTATED
520
INTELLIGENT ANNOTATOR
535
ANNOTATION DATABASE
545
RECORD KEEPING
530
CONTENT SERVER ADMINISTRATOR INPUT
415
ANNOTATED ARTICLE
HYPERTEXT
540
DESTINATION AND EXPIRATION DATABASE

FIG. 5

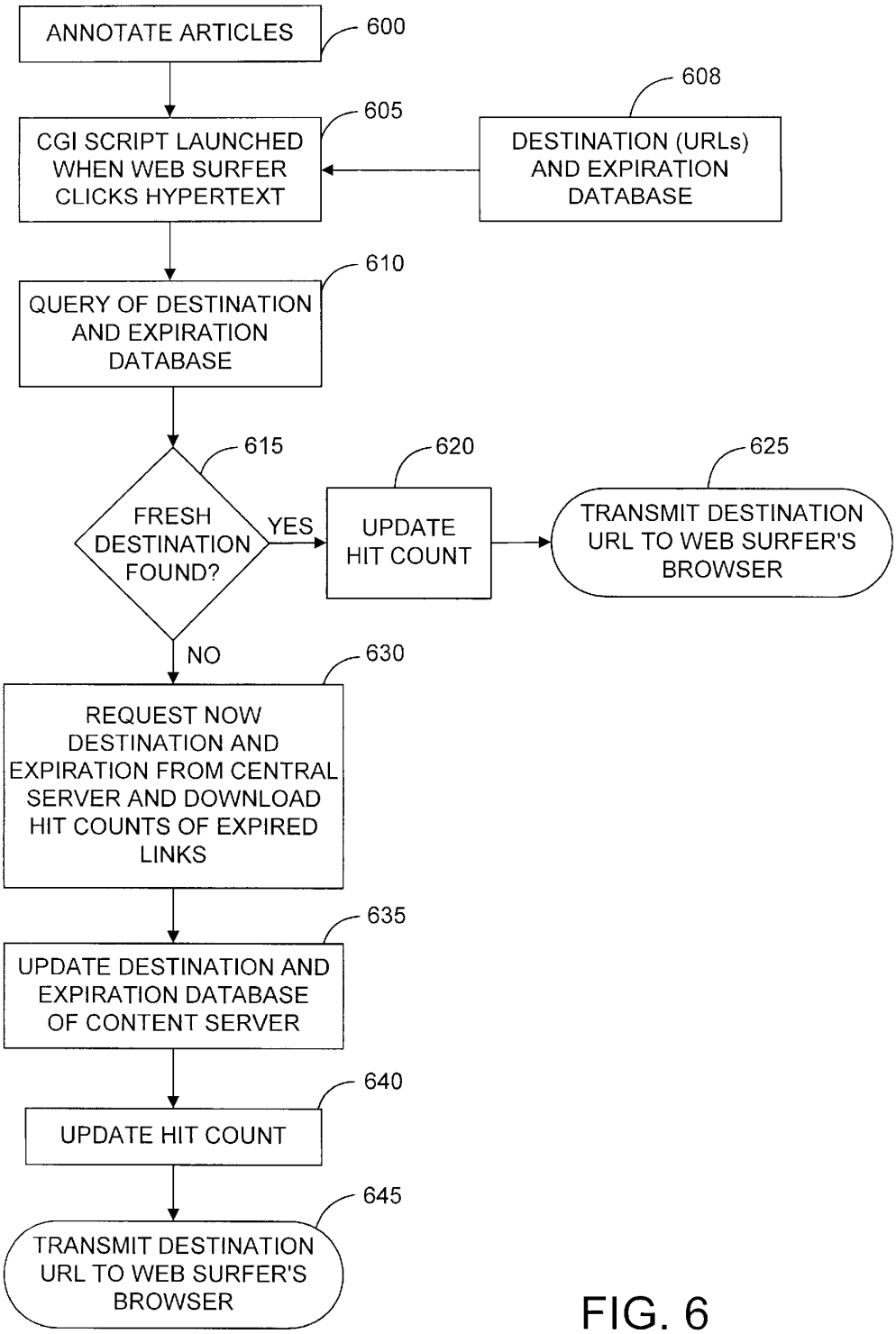
ANNOTATE ARTICLES
600
CGI SCRIPT LAUNCHED WHEN WEB SURFER CLICKS HYPERTEXT
605
DESTINATION (URLs) AND EXPIRATION DATABASE
608
QUERY OF DESTINATION AND EXPIRATION DATABASE
610
FRESH DESTINATION FOUND?
615
YES
UPDATE HIT COUNT
620
TRANSMIT DESTINATION URL TO WEB SURFER'S BROWSER
625
NO
REQUEST NOW DESTINATION AND EXPIRATION FROM CENTRAL SERVER AND DOWNLOAD HIT COUNTS OF EXPIRED LINKS
630
UPDATE DESTINATION AND EXPIRATION DATABASE OF CONTENT SERVER
635
UPDATE HIT COUNT
640
TRANSMIT DESTINATION URL TO WEB SURFER'S BROWSER
645

FIG. 6

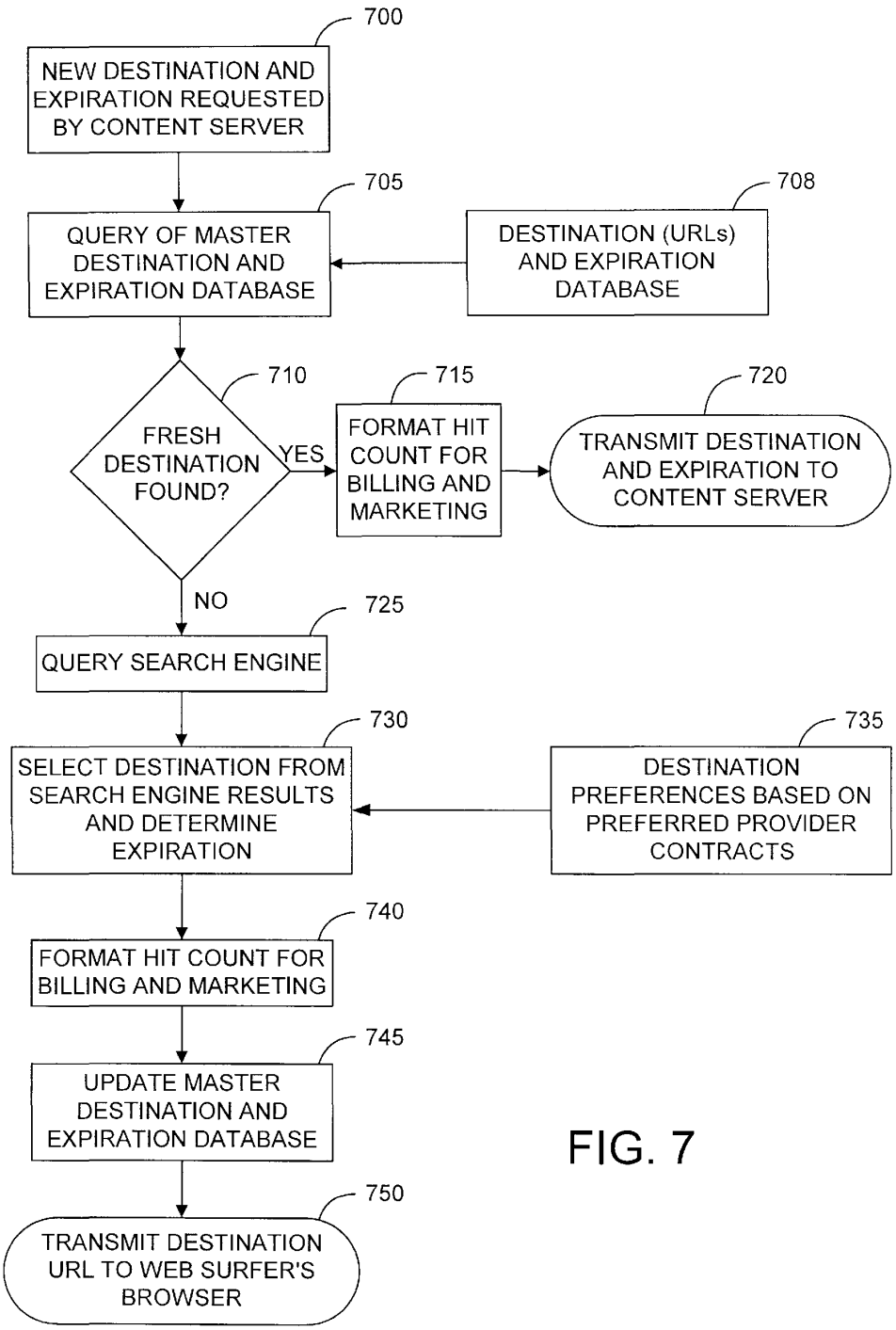
700
NEW DESTINATION AND EXPIRATION REQUESTED BY CONTENT SERVER
705
QUERY OF MASTER DESTINATION AND EXPIRATION DATABASE
708
DESTINATION (URLs) AND EXPIRATION DATABASE
710
FRESH DESTINATION FOUND?
YES
715
FORMAT HIT COUNT FOR BILLING AND MARKETING
720
TRANSMIT DESTINATION AND EXPIRATION TO CONTENT SERVER
NO
725
QUERY SEARCH ENGINE
730
SELECT DESTINATION FROM SEARCH ENGINE RESULTS AND DETERMINE EXPIRATION
735
DESTINATION PREFERENCES BASED ON PREFERRED PROVIDER CONTRACTS
740
FORMAT HIT COUNT FOR BILLING AND MARKETING
745
UPDATE MASTER DESTINATION AND EXPIRATION DATABASE
750
TRANSMIT DESTINATION URL TO WEB SURFER'S BROWSER

FIG. 7

DYNAMIC INSERTION AND UPDATING OF HYPERTEXT LINKS FOR INTERNET SERVERS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a method and apparatus for automatically providing hypertext anchor codes and destination addresses for a user-readable text file. The destination addresses are intermittently updated under the control of a central server to ensure that the destination addresses remain current. The invention is particularly suitable for use with text files which are stored on a server in a computer network such as the Internet.

2. Discussion

As the volume of information stored on computers continues to dramatically increase, new methods are sought to organize the information in an easy, intuitively retrievable way. Hypertext, which may include Hypertext Markup Language (HTML), Extended Markup Language (XML), or other forms of Standard Generalized Markup Language (SGML), is a common method of linking related computer files or pages. A file that references other information stored on a computer, whether directly or indirectly, generally displays an icon for the referenced information in some form of distinguished or highlighted text, usually colored or underlined. A computer user viewing the page can access the referenced document simply by selecting the highlighted text in the instant file, e.g., by clicking on the highlighted text with a mouse or other pointing device. A markup language anchor, or markup language hyperlink, is the reference icon on a Web page which links a user's Web browser to relevant information.

An HTML anchor, or HTML hyperlink, is the underlined text on a Web page which links a user's Web browser to another location. An HTML file includes text and HTML tags, and may also include graphics (e.g., hypermedia). Inside an HTML file, a tag is surrounded by angle braces "<. . . >". Text is displayed on the browser's screen with selected attributes such as font size and style. Tags are used to designate the current font, style, location, or to add images or convey other formatting details about the Web page to the browser.

Stand-alone tags and container tags may be used. Stand-alone tags involve one set of braces. For example, to put an image on the Web browser's screen, one might use:

<IMG SRC="picture.gif">

"IMG" refers to "image". "SRC", which refers to "source", is an attribute whose value is the name (i.e., source) of the file containing the image, e.g., "picture.gif". Container tags involve two sets of braces, namely one set to mark the beginning of a field, and another set of braces to mark the end of the field. HTML anchors are container tags. For example, to link the text "IBM" to the Uniform Resource Locator (URL) "www.ibm.com", one might use:

<A HREF="http://www.ibm.net">IBM</A>

"<A>" is an anchor code in HTML. Note how the "</A>" indicates the end of the container tag that began with the "<A . . . >" tag. "HREF" refers to a hypertext reference attribute.

This form of hypertext, illustrated in FIG. **1**, was originally conceived in March of 1989 by Tim Berners-Lee at the European Nuclear Council (CERN) as a method to disseminate information to geographically distributed researchers in high energy physics.

FIG. **1** is a block diagram of a static link architecture for linking a primary computer file to one or more destination files. Computer files, such as the primary computer file **100**, are stored locally on individual Web servers, but the hypertext links are capable of referencing documents on distant servers. For example, the primary computer file **100** includes two hypertext words, "A" and "B". The traversal of "A" (i.e., the user selecting "A") links the user to a destination file **110**, which contains text related to A. Similarly, the traversal of "B" links the user to a destination file **120**, which contains text related to B. Generally, destination file A **(110)**, destination file "B" **(120)** and the primary computer file **100** are each stored on physically separate servers, or computers.

The now familiar World Wide Web was launched publicly in January of 1992 when CERN opened its Web server to allow researchers to access data from the CERN server. Since then, the World Wide Web has seen incredible growth. Its uses now reach well beyond the international physics community.

The unprecedented growth in the World Wide Web has hastened the creation of more advanced methods of linking computer represented information. Graphics objects can now achieve the same linking functionality as traditional hypertext. However, these links are "hard coded". That is, the developer of a computer file using hypertext links (e.g., a Web developer) establishes connections for the links that remain static. The developer can manually reposition the links, but their static nature remains. One important problem facing the developer, then, is where to point the hard coded hypertext or graphics links. The developer must choose wisely, because the link will have to be manually changed later if the developer's preferences change.

Fortunately, the growth of the World Wide Web has also led to the development of multiple search engines, such as Yahoo™ and Lycos™, that allow a user to find needles of Web documents in the haystack of available information. The Web developer can locate URLs of desired computer files by entering keywords in the search engine and manually filtering the results. These search engines use primarily voluntary site registrations and Web user suggestions to develop and categorize large databases of URLs. These databases allow a user to find a desired Web document, and allow a developer to find a desired URL for static hypertext and graphics links.

However, even the capability of these search engines leaves the Web developer unsatisfied. Practical considerations preclude using static links for all available information because of screen size and storage limits. Information organized in real time when requested or "on the fly" according to a user's preferences overcomes the static hypertext limitation. Therefore, a primary area of development has been interactivity with Java™, ActiveX™, and Common Gateway Interface (CGI) scripts. Java™ and ActiveX™ enable a personal computer to run applications that help interactively retrieve and format requested information from a local or distant Web server. Similarly, CGI scripts allow the computer to launch an application on the currently accessed Web server that interactively retrieves and formats information. The Web developer can use these methods to give the user who accesses the page some control over which files are retrieved by various links.

For example, FIG. **2** is a block diagram of a dynamic link architecture for linking a primary computer file to one or more destination files. Here, a CGI script, Java Applet, or ActiveX control "A" **(210)** is responsive to a user input **(200)** for linking the hypertext "A" in the primary computer file **100** to the destination file "A" **(110)**. Likewise, a CGI script, Java Applet, or ActiveX control "B" **(220)** is responsive to a user input **(230)** for linking the hypertext "B" in the primary computer file **100** to the destination file "B" **(120)**.

Thus, the Web developer has two options for providing hypertext links in a primary computer file. The developer can insert static hypertext or graphics links using the search engines to determine the precise destination of the links. Alternatively, the developer can use an interactive method that allows the current user viewing the computer page to input preferences. These preferences are then used to filter, in real time, available files and retrieve the desired information.

However, these options suffer from two important disadvantages. First, the manual process by which static links are entered is tedious. A Web developer must find the desired destination URLs using available search engines and manually annotate the hypertext file with those URLs. If the developer's preferences later change, or if the URL is changed, the process must be repeated.

FIG. **3** illustrates the manual insertion of hyperlinks into a primary computer file. A primary computer file **300** contains text, such as a news article. At **310**, manual link insertion must be performed by manually identifying the particular words in the primary computer file **300** which are to have links. Next, corresponding anchor codes and URLs which are written in an HTML format must be inserted into the primary computer file. Finally, the primary computer file **100** with the hypertext "A" and "B" is obtained.

A second disadvantage with existing techniques for providing hypertext links is that a Web developer must either provide static links or allow the user some control over the destination of those links. Dynamic links created with Java, ActiveX, or CGI scripts can disallow user input, but current methods would reduce such emasculated dynamic links to effectively static links. That is, the developer would have to modify such links manually, and that manual modification is the essence of a static link.

Accordingly, it would be desirable to provide a system which allows a Web developer to automatically enter hypertext links into a computer file such as a news article or other sequence of user-readable character strings. The system should also provide simple and central control over the destination of previously static links. The system should allow updating of the links without requiring further processing of the computer file. The system should also provide pre-assigned preferred destination addresses for specific character strings.

For destination addresses which are not pre-assigned, the system should provide the capability to search a computer network to assign an appropriate destination addresses. This search should be performed in accordance with preference criteria. The system should provide the capability to assign class codes to the specific character strings. Additionally, the system should assign expiration periods or dates to the destination addresses. The system should maintain a hit count of the character strings at each content server, and provide a capability for transmitting hit count data to the central server.

The present invention provides a system having the above and other advantages.

SUMMARY OF THE INVENTION

The present invention relates to a method and apparatus for automatically providing hypertext anchor codes and destination addresses for a user-readable text file at a content server. Central control over a plurality of content servers is also provided.

A hypertext link is provided for a character string of a text file or other computer information. The invention may be implemented in a variety of ways. For example, when the character strings are provided in a discrete file, anchor codes may be inserted into the file which reference destination addressees such as URLs which are stored in a separate database. Alternatively, the anchor codes may reference a database location which is subsequently provided with a destination address.

In another alternative, the anchor code and/or destination addresses may be associated with particular character strings using relational database programming techniques, such as Structured Query Language (SQL). Moreover, the association between the character strings and the destination addresses, or destination address locations, may be initiated in different ways.

For example, the association may be initiated under the control of an administrator of a content server on which the text files or other computer information is stored. Alternatively, the association may be initiated by a remote Web user who activates particular text or other icon on his computer screen. In another alternative, the association may be initiated by a central server which has the capability to provide control signals to the content server.

Regardless of the specific implementation, provision of a timely destination address for character strings in the text file or other computer information is provided.

A central server may provide central control of the links of text files of a plurality of content servers in an information network such as the Internet. The central server intermittently updates each content server with new character strings and/or destination addresses, and also receives new character strings from the content server.

Optionally, each content server can query the central server on a real-time basis to obtain a destination address for a character string which has no valid corresponding destination address at the content server. The central server responds to such queries by searching its master databases, and using a search engine if required, to obtain a destination address.

Hit count data may be maintained at the content servers and transmitted to the central server from time to time to allow tracking of links which are selected by Web users.

In one embodiment, a computer system provides hypertext links for a plurality of character strings including a first character string. The computer system comprises: an annotation database associated with a primary computer which comprises a plurality of linkable character strings; a destination database associated with the primary computer which comprises a plurality of destination addresses; and determining means associated with the primary computer for determining a matching linkable character string for the first character string, if present, in the annotation database; wherein the matching linkable character string is associated with at least one of the destination addresses.

The computer system may further comprise querying means associated with the primary computer for querying the destination database to obtain the at least one destination address corresponding to the matching linkable character string.

The computer system may further comprise means associated with the primary computer for providing an anchor code which relates the matching linkable character string to the at least one corresponding destination address to provide a hypertext link for the first character string.

The system can thus process each character string in an article to provide destination addresses for each user-readable character string which has a match in the annota-

tion database. The anchor code is preferably maintained separate from the destination address so the destination address can be easily updated without modifying the anchor code.

Optionally, the annotation database further comprises a plurality of class codes which are associated with the plurality of linkable character strings; the matching linkable character string has a plurality of class codes associated therewith; the destination database comprises a plurality of destination addresses corresponding to the plurality of class codes of the matching linkable character string; querying means associated with the primary computer for querying the destination database to obtain the plurality of destination addresses corresponding to the associated plurality of class codes; and means associated with the primary computer for providing a plurality of anchor codes which relate the matching linkable character string to the corresponding plurality of destination addresses to provide a corresponding plurality of hypertext links for the first character string.

For example, one class code may designate a home page for the first user-readable character string, while a second class code designates a stock quote page for the first user-readable character string.

Optionally, writing means associated with the primary computer for writing a plurality of character strings into a primary computer file in which the first character string is carried to identify the corresponding plurality of hypertext links for the first character string.

The computer system may further comprise interface means such as a graphical user interface for receiving an administrator input which designates the first character string. That is, a content server administrator may select particular words to be linked if it is expected that the particular words are not already in the annotation database. The writing means is adapted to write a linkable character string corresponding to the first character string into the annotation database when the matching linkable character string is not present in the annotation database. Thus, the annotation database is updated with the new character string.

The computer system may further comprise interface means for receiving an administrator input which designates the first character string; transmitting means for transmitting the first character string to a central computer via a communication network when a linkable character string corresponding to the first character string is not present in the annotation database; wherein the central computer is adapted to provide a corresponding destination address; and receiving means for receiving the corresponding destination address from the central computer via the communication network.

Optionally, the writing means is adapted to update the destination database with the corresponding destination address received from the central computer.

The computer system may further comprise transmitting means for transmitting the first character string to a central computer via a communication network when a destination address corresponding to the first character string is not present in the destination database; wherein the central computer is adapted to provide a corresponding destination address; and receiving means for receiving the corresponding destination address from the central computer via the communication network.

Optionally, the writing means is adapted to update the destination database with the corresponding destination address received from the central computer.

The computer system may further comprise receiving means for receiving updated linkable character strings from a central computer via a communication network in an intermittent maintenance mode; wherein the writing means is adapted to update the annotation database with the updated linkable character strings.

The computer system may further comprise receiving means for receiving updated destination addresses from the central computer via the communication network in an intermittent maintenance mode; wherein the writing means is adapted to update the destination database with the updated destination addresses.

The computer system may further comprise qualifying means associated with the destination database for qualifying the at least one corresponding destination address according to an expiration date associated therewith.

Optionally, transmitting means responsive to the qualifying means are provided for transmitting the matching linkable character string to a central computer via a communication network if the associated expiration date of the at least one corresponding destination address has passed; wherein the central computer is adapted to provide an updated destination address corresponding to the matching linkable character string; and receiving means for receiving the updated destination address from the central computer via the communication network.

Optionally, the writing means is adapted to update the destination database with the updated destination address.

When at least some of the linkable character strings in the annotation database have an associated major class code, the computer system may further comprise qualifying means associated with the annotation database for qualifying the matching linkable character string according to qualification criteria which requires the major class code of the matching linkable character string to match a preferred major class code.

Optionally, interface means associated with the primary computer are provided for receiving an administrator input which designates the preferred major class code.

Receiving means may also be provided for receiving a signal indicative of the preferred major class code from a central computer via a communication network.

The computer system may further comprise record keeping means for maintaining hit count data relating to the plurality of character strings; and transmitting means for transmitting the hit count data to a central computer via a communication network.

The computer system may further comprise interface means for receiving an administrator input which designates at least one character string of the plurality of character strings which does not have a corresponding matching character string in the annotation database; and transmitting means for transmitting the at least one character string to a central computer via a communication network for updating the central computer in an intermittent maintenance mode.

In a further embodiment, a computer system includes a central computer adapted to communicate with a plurality of primary computers via a communication network. The computer system comprises defining means associated with the central computer for defining a plurality of linkable character strings; an annotation database associated with the central computer for storing the plurality of linkable character strings; assigning means associated with the central computer for assigning at least one corresponding destination address to each of the linkable character strings; a destination database associated with the central computer for storing the assigned destination addresses; and transmitting

means associated with the central computer for transmitting specific ones of the plurality of linkable character strings and specific ones of the destination addresses to the plurality of primary computers via the communication network in an intermittent maintenance mode.

The assigning means is adapted to communicate with a search engine for searching an information network using particular ones of the linkable character strings as search terms to obtain particular ones of the corresponding destination addresses.

Particular ones of the linkable character strings and particular ones of the corresponding destination addresses are accorded a preferred status such that the assigning means pre-assigns the particular ones of the corresponding destination addresses to the particular ones of the linkable character strings without searching an information network. The preferred status may be based on a payment received from a preferred provider, i.e., the operator of a particular Web page.

The computer system further comprises a destination filter associated with the assigning means for filtering destination addresses obtained from the search engine according to preference criteria to obtain the destination addresses which are assigned to the linkable character strings.

The computer system further comprises receiving means associated with the central computer for receiving a first character string from a particular one of the primary computers via the communication network; querying means associated with the central computer for querying the destination database to obtain at least one destination address corresponding to the first character string; and transmitting means for transmitting the at least one corresponding destination address to the particular primary computer via the communication network.

The computer system further comprises receiving means associated with the central computer for receiving designated character strings from the primary computers via the communication network in the periodic maintenance mode; the designated character strings being designated by an administrator input at the primary computers; and writing means associated with the central computer for updating the annotation database with the designated character strings if the designated character strings are not present in the annotation database.

Optionally, the assigning means is adapted to communicate with a search engine for searching an information network using the designated character strings as search terms to obtain corresponding destination addresses; and the writing means is adapted to update the destination database with the corresponding destination addresses.

Optionally, a screening filter is provided for screening the designated character strings to eliminate words that may have been improperly designated, e.g., including misspelled words, or common place words such as "the" or "a" which should not be linked to.

The assigning means may assign corresponding expiration period data to the assigned destination addresses; and the transmitting means may transmit the expiration period data to the plurality of primary computers via the communication network.

The assigning means is adapted to assign major class code data to the plurality of linkable character strings; the annotation database is adapted to store the major class code data; and the transmitting means is adapted to transmit the major class code data to the plurality of primary computers via the communication network.

The assigning means is adapted to assign a plurality of the corresponding destination addresses to at least one of the linkable character strings.

The computer system further comprises receiving means associated with the central computer for receiving hit count data from the primary computers via the communication network.

In a further embodiment, a method for providing hypertext links for a plurality of character strings, including a first character string, comprises the steps of: providing an annotation database associated with a primary computer which comprises a plurality of linkable character strings; providing a destination database associated with the primary computer which comprises a plurality of destination addresses; and determining a matching linkable character string for the first character string, if present, in the annotation database; wherein the matching linkable character string is associated with at least one of the destination addresses.

The method may comprise the further step of providing querying means associated with the primary computer for querying the destination database to obtain the at least one destination address corresponding to the matching linkable character string.

The method may comprise the further step of providing an anchor code which relates the matching linkable character string to the at least one corresponding destination address to provide a hypertext link for the first character string.

Optionally, the annotation database further comprises a plurality of class codes which are associated with the plurality of linkable character strings; the matching linkable character string has a plurality of class codes associated therewith; and the destination database comprises a plurality of destination addresses corresponding to the plurality of class codes of the matching linkable character string; in which case the method comprises the further steps of querying the destination database to obtain the plurality of destination addresses corresponding to the associated plurality of class codes; and providing a plurality of anchor codes which relate the matching linkable character string to the corresponding plurality of destination addresses to provide a corresponding plurality of hypertext links for the first character string.

The method may comprise the further step of writing a plurality of character strings into a primary computer file in which the first character string is carried to identify the corresponding plurality of hypertext links for the first character string.

Optionally, the method comprises the further steps of receiving an administrator input which designates the first character string; and writing a linkable character string corresponding to the first character string into the annotation database when the matching linkable character string is not present in the annotation database.

Optionally, the method comprises the further steps of receiving an administrator input which designates the first character string; transmitting the first character string to a central computer via a communication network when a linkable character string corresponding to the first character string is not present in the annotation database; wherein the central computer is adapted to provide a corresponding destination address; and receiving the corresponding destination address from the central computer via the communication network.

The destination database may be updated with the corresponding destination address received from the central computer.

Optionally, the method comprises the further steps of transmitting the first character string to a central computer via a communication network when a destination address corresponding to the first character string is not present in the annotation database; wherein the central computer is adapted to provide a corresponding destination address; and receiving the corresponding destination address from the central computer via the communication network.

The method may comprise the further steps of receiving updated linkable character strings from a central computer via a communication network in an intermittent maintenance mode; and updating the annotation database with the updated linkable character strings.

Optionally, the method comprises the further steps of receiving updated destination addresses from the central computer via the communication network in an intermittent maintenance mode; and updating the destination database with the updated destination addresses.

The method may comprise the further step of qualifying the at least one corresponding destination address according to an expiration date associated therewith.

The method may comprise the further step of transmitting the matching linkable character string to a central computer via a communication network if the associated expiration date of the at least one corresponding destination address has passed; wherein the central computer is adapted to provide an updated destination address corresponding to the matching linkable character string; and receiving the updated destination address from the central computer via the communication network.

Optionally, the destination database is updated with the updated destination address.

When at least some of the linkable character strings in the annotation database have an associated major class code, the method may comprise the further steps of qualifying the matching linkable character string according to qualification criteria which requires the major class code of the matching linkable character string to match a preferred major class code.

The method may comprise the further steps of receiving an administrator input which designates the preferred major class code.

The method may comprise the further steps of receiving a signal indicative of the preferred major class code from a central computer via a communication network.

The method may comprise the further steps of maintaining hit count data relating to the plurality of character strings; and transmitting the hit count data to a central computer via a communication network.

The method may comprise the further steps of receiving an administrator input which designates at least one character string of the plurality of character strings which does not have a corresponding matching character string in the annotation database; and transmitting the at least one character string to a central computer via a communication network for updating the central computer in an intermittent maintenance mode.

In a further embodiment, a method is presented for communicating with a plurality of primary computers via a communication network. The method comprises the steps of: defining a plurality of linkable character strings at a central computer; storing the plurality of linkable character strings in an annotation database associated with the central computer; assigning at least one corresponding destination address to each of the linkable character strings; storing the assigned destination addresses at a destination database associated with the central computer; and transmitting specific ones of the plurality of linkable character strings and specific ones of the destination addresses to the plurality of primary computers via the communication network in an intermittent maintenance mode.

The method may comprise the further steps of communicating with a search engine for searching an information network using particular ones of the linkable character strings as search terms to obtain particular ones of the corresponding destination addresses.

The method may comprise the further steps of filtering destination addresses obtained from the search engine according to preference criteria to obtain the destination addresses which are assigned to the linkable character strings.

The method may comprise the further steps of receiving a first character string from a particular one of the primary computers via the communication network; querying the destination database to obtain at least one destination address corresponding to the first character string; and transmitting the at least one corresponding destination address to the particular primary computer via the communication network.

The method may comprise the further steps of receiving designated character strings from the primary computers via the communication network in the periodic maintenance mode; wherein the designated character strings are designated by an administrator input at the primary computers; updating the annotation database with the designated character strings if the designated character strings are not present in the annotation database.

The method may comprise the further steps of communicating with a search engine for searching an information network using the designated character strings as search terms to obtain corresponding destination addresses; and updating the destination database with the corresponding destination addresses.

The features, objectives and advantages of the invention will become more apparent from the detailed description set forth below when taken in conjunction with the drawings, in which like reference designators refer to like elements throughout.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a block diagram of a static link architecture for linking a primary computer file to one or more destination files.

FIG. **2** is a block diagram of a dynamic link architecture for linking a primary computer file to one or more destination files.

FIG. **3** illustrates the manual insertion of hyperlinks into a primary computer file.

FIG. **4** is a conceptual diagram illustrating a global architecture of a computer system in accordance with the present invention.

FIG. **5** illustrates a central server and content server in accordance with the present invention.

FIG. **6** illustrates a process flow for a content server in accordance with the present invention.

FIG. **7** illustrates a process flow for a central server in accordance with the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The present invention relates to a method and apparatus for automatically providing hypertext anchors and destina-

tion addresses for a user-readable text file. Central control over the destination addresses of hyperlinks in a plurality of content servers is also provided.

The following definitions are provided:

Dynamic Decision Filter™—software such as a CGI script which has two parts. Part A is executed at a content server, while Part B is executed at a central server;

Dynamic Hypertext™—modified hypertext in accordance with the present invention;

Intelligent Annotator™—software that provides dynamic hypertext for an article to be annotated; may be implemented as a state machine at each content server; and

Destination Address—a variable that designates the location of a network resource such as a Web page; may take the form of a URL.

FIG. **4** is a conceptual diagram illustrating a global architecture of a computer system in accordance with the present invention. A central server or computer **450** controls a plurality of content servers or computers, such as a content server **410**. The central server **450** maintains a master database of specific words or phrases (e.g., character strings), as well as a database of corresponding destination addresses, such as URLs. Furthermore, the central server **450** operates in a maintenance mode wherein it intermittently updates each content server with particular ones of the character strings and destination addresses, e.g., on a daily or weekly basis. The intermittent update may be at fixed or varying intervals.

In particular, the central server may updated the content servers with any new character strings or new or updated destination addresses. Also during the maintenance mode, data can be communicated from the content servers to the central server. This data can include hit count data and any new character strings which were identified at the content server. Accordingly, during the maintenance mode, both the content server and the central server are updated with new terms.

For example, for business applications, the character strings may be names of companies, including the formal name, nickname, and stock ticker symbol. To illustrate, the character strings "International Business Machines" and "IBM" may have a corresponding destination address of "www.ibm.com". The central server **450** may be updated to reflect new companies, such as initial public offerings (IPOs) as well as name changes, for example, due to mergers.

For sports applications, the central server **450** may maintain a database of sports teams, cities, and players, as well as corresponding destination addresses. For example, many professional sports teams and leagues maintain a home page. To illustrate, the character strings "National Football League" and "NFL" may have a corresponding destination address of "www.nfl.com".

The central server **450** may include a master annotation database which stores character strings which are associated with preferred destination addresses. One example is the use of a master annotation database for travel industry applications, where the master annotation database contains a listing of travel destinations, airlines, and so forth, which have corresponding preferred destination addresses in a destination address of the central server **450**. Since several destination addresses may be suitable for a particular character string, one or more particular destination addresses may be accorded a preferred status by the central server administrator on a pay basis. Preferred destination address are operated by preferred providers.

A master annotation database may also store general purpose character strings which do not fall into a particular category. The implementation and functions of a master annotation database are discussed in greater detail below in connection with FIG. **5**.

Referring again to FIG. **4**., the central server **450** runs a CGI script, shown at function **430**, which is referred to herein as "Part B" of a Dynamic Decision Filter™. A counterpart "Part A" of the Dynamic Decision Filter, shown at function **420**, is run in the content server **410** and is described hereinafter.

The central server **450** may perform Web searches using a search engine **470** to obtain destination addresses for the character strings. Generally, preferred destination addresses will be pre-assigned to the character strings at the central server **450** so no search is needed to obtain the destination address.

When the destination addresses are not pre-assigned, the search engine **470** searches a computer network such as the Internet using a particular character string as a search term to obtain one or more candidate destination addresses. The candidate destination addresses can be filtered according to preference criteria to obtain one or more destination addresses which are then assigned to the particular character string. The preference criteria may designate a particular type of web site, e.g., business, sports or travel, from which the candidate destination addresses are obtained.

The content server **410** generally is physically separated from the central server **450** but communicates with the central server **450** via a conventional communication network. The content server **410** processes an on-line text article **405** using an executable Intelligent Annotator™ **412** to automatically associate hypertext anchor codes with various character strings in the article. A resulting on-line article with hypertext **415** can be produced and stored locally on the content server **410**. Alternatively, computer information (e.g., digital data) can be provided to a Web user which displays the annotated article with hypertext **415**, but the annotated article with hypertext **415** need not be pre-processed and stored as a discrete file. The hypertext in the article **415** is termed Dynamic Hypertext™ in accordance with the present invention.

The content server **410** may provide hypertext links only for character strings in the on-line article **405** which match a local database of stored character strings at the content server, and/or which have no corresponding destination address. If a character string in the on-line article **405** does not match the database of stored character strings or has no corresponding destination address, no link is provided.

However, by providing a "content server administrator input," a capability can be implemented for specifically designating a hyperlink for a particular character string in the article **405** that does have a corresponding destination address, and/or no match in the database of stored character strings. In this case, the corresponding destination address is dynamically determined, e.g., in real time, by having the content server **410** communicate the unmatched character string to the central server **450**. This character string may be present at the central server **450** if the central server has not yet updated the content server **410** with the new character string and corresponding destination address. Alternatively, there may be no corresponding destination address for the character string at the central server **450**, in which case a Web search is performed by the central server **450** via search engine **470**.

The content server **410** may need to contact the central server **450** even if a matching destination address is found

for a particular character string, for example, if the matching destination address has expired and therefore may be "stale".

A Web surfer's browser **435** communicates with the content server **410** to access the on-line article with hypertext **415**. The Web surfer clicks on (or otherwise selects) the hypertext in the on-line article **415** to launch CGI script **420**, referred to as "Part A" of the Dynamic Decision Filter™. Part A of the Dynamic Decision Filter™ provides a relevant destination address for computer information **440**. The Web surfer's browser **435** then communicates with a third party server **445**, which delivers the relevant destination to the browser **435**, e.g., in the form of the designated Web page.

FIG. **5** illustrates a central server and content server in accordance with the present invention. Like-numbered elements in FIGS. **4** and **5** correspond to one another. The central server **450** provides character strings and corresponding destination addresses, such as URLs, preferably to a large number of content servers in a network.

A server, or file server, refers to a computer system with data storage that allows different users to access the data storage via a computer network. In a client-server interaction, a client forwards a file request. The server accepts the client's request, performs the associated operation (e.g., open, close, read, write, or seek), and returns a response to the client. The content server **410** need not be a server, strictly speaking, and therefore may be alternatively be referred to as a "content computer." The central server **450** may be referred to as a "central computer".

The central server **450** communicates with a search engine server and search engine **470**, which in turn communicates with other network resources **580**, such as other content servers.

Generally, the central server **450** communicates with a large network of content servers (including content server **410**) on an intermittent basis, such as daily or weekly. In this manner, each content server can be provided with updated destination addresses and corresponding key words or phrases (e.g., character strings) which provide a link to the destination addresses. Additionally, the content servers will have a chance to provide the central server with new character strings, hit count data, and other housekeeping data, such as current software version.

A master annotation database **560** associated with central server **450** maintains a listing of words and phrases which are of interest. The words and phrases may be related to specific subject areas, such as business, sports, travel, books, compact discs, and so forth, by assigning class codes to the various subject areas.

A destination decision filter **565** may obtain destination addresses for each of the character strings in the master annotation database **560** by communicating with the search engine **470** which, as indicated in FIG. **5**, can reside in a search engine server. The destination addresses are stored in a master destination and expiration database **555**. A central administrator input **590** may communicate with each function in the central server **450** to enable updates and modifications to be made to the central server software. Expiration dates may be assigned to the destination addresses by the central server **450** so that a new destination address is obtained for a particular character string upon the expiration of the old destination address. For example, an expiration period of ninety days may be used. Expiration date data may designate a particular calendar date, or may indicate a countdown period.

Destination preferences **568** may influence the destination decision filter **565** so that preferred addresses are selected. For example, particular destination addresses may be assigned a preferred status upon payment of a fee, or based on other proprietary interest.

Moreover, the central server **450** may pre-assign a preferred destination address to a character string so that no search is performed. For example, various organizations have Web pages which provide free movie reviews. However, those organizations which receive the most visitors, e.g., have the highest "hit count", will be able to sell advertising space on their Web page at a higher rate. Accordingly, a particular organization may pay the central server administrator a fee to have that organization's Web page set up as a link in on-line articles which relate to movies.

Accordingly, various character strings relating to movies can be assigned to a preferred destination address. These character strings might include names of movies, actors and actresses, and directors. The preferred organization provides the desired destination address to the central server administrator, who in turn updates the master annotation database **560** and master destination and expiration database **555** via input **590**.

The content server **410** includes an Intelligent Annotator™ **520**, an article to be annotated **405**, a content server administrator input **530**, an annotation database **535**, a destination and expiration database **540**, an annotated article **415**, and a record keeping function **545**. Computer information regarding the article to be annotated **405** is processed by the Intelligent Annotator **520**. This computer information may be a discrete computer file, which may or may not have existing hypertext. However, there is no requirement that the article to be annotated is stored in a discrete computer file, and the computer information regarding the article to be annotated **405** may be provided in essentially any format, and from any source.

Data provided by the content server administrator (e.g., Web master) from a publisher or the like may be optionally provided via input **530**. The input **530** may be a graphical interface which allows a person to select particular words in an article which are to be linked, or a computer program such as a script which automatically implements the administrator's preferences without requiring a manual user input.

The Intelligent Annotator™ **520** processes the computer information regarding the article to be annotated **405** to associate a destination address or destination address location with particular character strings in the article to be annotated **405**. This association may be realized in a variety of ways. For example, the Intelligent Annotator™ **520** may output a discrete annotated article **415** which is subsequently stored in memory on the content server **410**. The annotated article **415** may be a new computer file, or a computer file which is a re-written version of the article to be annotated **405**.

The output computer information need not be stored as a discrete file for subsequent retrieval. Instead, it is possible to output a file or other computer information for viewing by a user whenever the user activates a particular character string of the article to be annotated. This computer information may optionally combine a prepared background or template with the annotated text which the user views. Thus, the computer information viewed by the user appears as a markup language like file, but the computer information is processed by the Intelligent Annotator™ **520** each time the user accesses the information.

The Intelligent Annotator™ **520** may correlate entries in the database using any of several well known matching algorithms.

Upon receipt of an article to be annotated, the Intelligent Annotator™ scans the file to determine matching strings

from the annotation database **535**. One rapid way to scan a large input character string for matching text is with a Discrete Finite Automata (DFA), or state machine, since the Intelligent Annotator™ **520**, implemented as a state machine on a computer, does not have to compare any entire strings. Instead, it only compares one character at a time to see which path to take, and thus which state to go to next.

The character strings from the annotation database, i.e., the strings which are searched, can therefore be used by annotator software of the Intelligent Annotator™ **520** to automatically build a DFA whose terminal states indicate that a matching character string from the annotation database **535** has been found in the article to be annotated **405**. Once a matching character string is found, the Intelligent Annotator™ **520** provides an anchor code which references a destination address in the destination and expiration database **540**.

The anchor code may be associated with the matching character string in a variety of ways. For example, as illustrated in the example below, anchor codes may be inserted into the article to be annotated **405** next to the matching character string. However, the anchor code may alternatively be associated with the matching character string using relational database techniques, such as such as SQL. Each character string in the article to be annotated **405** may be referenced according to a bit count position, and the anchor code may be associated with a particular character string according to the corresponding bit count.

For example, the article to be annotated **405** as viewed by a Web user may be a business article which reads:

"NEW YORK—Stocks fell modestly yesterday as the technology sector stumbled. At 11 a.m. on Wall Street, the Dow Jones industrial average was down 24.12. The technology-heavy NASDAQ composite index was also down due in part to discouraging profit forecasts from IBM."

The Intelligent Annotator™ traverses the text of the article. That is, each word or phrase is examined to determine whether the text should be converted to hypertext. Moreover, for words or phrases which already have conventional hypertext anchors, the new anchor data in accordance with the present invention can either overwrite the old anchor data, or be inserted along with the old anchor data. Therefore, the article to be annotated **405** may be a text file with no hyperlinks, or a file with conventional hyperlinks. Additionally, as mentioned, the article to be annotated need not be a discrete file, but may comprise computer information from any source, and in any format.

The corresponding annotated article **415** as viewed by a Web user may read:

"NEW YORK—Stocks fell modestly yesterday as the technology sector stumbled. At 11 a.m. on Wall Street, the Dow Jones industrial average (home|quote) was down 24.12 points. The technology-heavy NASDAQ (home|quote) composite index was also down due in part to discouraging profit forecasts from IBM (home|quote)."

The hypertext is shown as underlined text. Additionally, color or other font attributes may be used. The hypertext "NEW YORK" may be pointed to by a user to activate a hypertext link to a corresponding URL which is stored in the destination and expiration database **540**. Similarly, the hypertext "Wall Street" may be pointed to by a user to activate a hypertext link to its corresponding URL in the destination and expiration database **540**.

The hypertext for the character strings "Dow Jones industrial average", "NASDAQ", and "IBM" offers two choices with the associated hypertext "(home|quote)". Activation of the hypertext "home" which is associated with the character string "Dow Jones industrial average" will lead the user to a corresponding Dow Jones industrial average home page whose URL is stored in the destination and expiration database **540**. This home page might provide the user with general information regarding the Dow Jones industrial average and its parent company, Dow Jones, Inc. The linking of the hypertext to the corresponding destination address is achieved by Part B of the Dynamic Decision Filter™.

Likewise, activation of the hypertext "quote" which is associated with the character string "Dow Jones industrial average" will lead the user to a corresponding quote page whose URL is stored in the destination and expiration database **540**. This quote page would provide a current quote of the value of the Dow Jones industrial average.

Similarly, hypertext links to home pages for NASDAQ and IBM are provided. The quote page for NASDAQ and IBM can be the same as the quote page for Dow.

When two or more hypertext links are provided for a character string in the article to be annotated **405**, the two or more corresponding hypertext words can be inserted immediately after the character string. When only one hypertext link is provided for a character string, the character string itself can become the hypertext. However, for one hypertext link, it is also possible to insert a hypertext word or words (e.g., "home") which describes the link.

The example article to be annotated **405** may be provided using the following HTML:

"<!start_tag>
<p>NEW YORK—Stocks fell modestly yesterday as the technology sector stumbled. At 11 a.m. on Wall Street, the Dow Jones industrial average was down 24.12. The technology-heavy NASDAQ composite index was also down due in part to discouraging profit forecasts from IBM.
<p>
<!end_tag>"

The annotated article **415** output from the Intelligent Annotator™ **520** may be provided using the following HTML:

```
"<!start_tag>"
<p> <a href="/cgi-in/sw?t=NEW+YORK&c=home">NEW
YORK</a>-Stocks fell modestly yesterday as the
technology sector stumbled. At 11 a.m. on <a
href="/cgi-bin/sw?t=Wall+Street&c=home">Wall
Street</a>, the Dow Jones industrial average (<a
href="/cgi-
bin/sw?t=Dow+Jones+industrial+average&c=home">home</
a>|<a href="/cgi-
bin/sw?t=Dow+Jones+industrial+average&c=quote">quote
</a>) was down 24.12. The technology-heavy NASDAQ
(<a href="/cgi-bin/sw?t=NASDAQ&c=home">home</a>|<a
href="/cgi-bin/sw?t=NASDAQ&c=quote">quote</a>)
composite index was also down due in part to
discouraging profit forecasts from IBM (<a
href="/cgi-bin/sw?t=IBM&c=home">home</a>|<a
href="/cgi-bin/sw?t=IBM&c=quote">quote</a>)
<p>
<!end_tag>"
```

The term <a> is HTML which designates a hypertext anchor. The Intelligent Annotator™ **520** associates anchor codes and corresponding destination addresses with the matched character strings. In one embodiment, the Intelligent Annotator™ **520** inserts anchor codes into the annotated article **415** to identify the corresponding destination address in the destination and expiration data base **540**. Alternatively, relational database techniques may be used.

For example, the anchor code for the character string "Wall Street" is:

"/cgi-bin/sw?t=Wall+Street&c=home".

This anchor code references a directory "cgi-bin" of source code used by the Intelligent Annotator™ **520**. Additionally, "sw" references Part A of the Dynamic Decision Filter™, thereby launching the corresponding script, while "t=" precedes the applicable text (e.g., Wall Street), and "c=" precedes the applicable minor class (e.g., home), discussed below. This source code may be written in C++ or any other suitable programming language, and stored on the content server **410**. The Intelligent Annotator™ **520** can be run through a graphical user interface (GUI) or through a script used to automate other aspects of Web page development. Additionally, within the directory "cgi-bin", the character string "Wall Street" references a destination address, which is a home page for Wall Street, e.g., "http://www.wallstreet.com".

As an example of a character string of the article to be annotated **405** which has two destination addresses, refer to the two anchor codes for Dow Jones industrial average. The anchor code for the "home" page is:

"/cgi-bin/sw?t=Dow+Jones+industrial+average&c=home".

Moreover, within the directory "cgi-bin", the hypertext "home" of the annotated article **415** for the character string "Dow Jones industrial average" references a destination address which is a home page for the Dow Jones industrial average, e.g., "http://www.djia.com".

The anchor code for the "quote" page is:

"/cgi-bin/sw?t=Dow+Jones+industrial+average&c=quote".

Within the directory "cgi-bin", the hypertext "quotes" of the annotated article **415** for the character string "Dow Jones industrial average" references a destination address which is a quote page, e.g., "http://www.quotes.com".

Advantageously, the present invention allows the destination addresses in the database **540** to be changed without changing the annotated article. That is, the destination address which is referenced by a given anchor code can be changed over time. For example, the anchor code for "quote" mentioned above may initially reference the destination address "http://www.quotes.com" which is provided by Company A. However, a competing company, such as a stock broker, Company B, may pay the central server administrator to update the master destination and expiration database **555** with the preferred destination address of Company B, e.g., "http://www.companyB.com".

When the next periodic update of the content servers occurs, the central server **450** will transmit the updated destination address to the content server **410** for storage in the destination and expiration database **540**. Then, the next time a Web surfer activates the anchor code for "quote" mentioned above, a link to the preferred destination address of Company B will occur.

It will be appreciated that a mechanism is required to determine which character strings (e.g., words or phrases) in the article to be annotated **405** are actually annotated, e.g., provided with hypertext. The annotation database **535** achieves this goal by storing a list of character strings which are intermittently received from the central server **450** during the central server's maintenance mode. Additionally, one or more major and/or minor class codes may be associated with each character string in the annotation database **535**. As a brief illustration, the annotation database **535** may have the following format:

#Major Class Codes:
100 = business
200 = sports
#
Minor Class Codes:
1 = home page
2 = stock quote
3 = news stories
4 = team scores
#

Character string	Major Class	Minor Class
Class(es)		
Compaq	100	2, 3
IBM	100	1, 2, 3
International Business Machines	100	1, 2, 3
Merck	100	2, 3
Micron	100	2, 3
Viasat	100	1, 2, 3
NFL	200	1
National Football League	200	1
San Diego Padres	200	1, 3, 4

The Intelligent Annotator™ **520** compares each character string in the article to be annotated **405** the character strings in the annotation database **535** to see if there is a match. If there is no match, no hypertext is provided for the unmatched character string unless instructions are entered via the content server administrator input **530** to provide a link for a specific character string or strings.

The content server administrator input **530** may be used to specifically request that a particular character string be linked. A user interface may be provided to allow the content server administrator to perform this function easily, for example, by highlighting the particular character string on a display (not shown) associated with the content server. If the particular character string is not present in the annotation database **535**, and/or there is no corresponding destination address, the content server **410** transmits the character string to the central server **450**, preferably in real time, where a check is made to see if a destination address is available for the character string in the master destination and expiration database **555**.

A match for the character string may be available in the master destination and expiration database **555** but not in the destination and expiration database **540** if the content server **410** has not Vet been provided with the updated character string and destination address in the most recent periodic update.

If no destination address is available for the character string in question at the master destination and expiration database **555**, the master annotation database **560** is optionally updated with the new character string, and the search engine **470** is used to search the other network resources **580** using the character string as a search term. Other search terms may be used, for example, according to the class of the character string. Once an appropriate destination address is obtained, the database **555** is updated with the new address, and the new address is transmitted to the content server **410** and stored in the destination and expiration database **540**.

Thus, the content server is provided with the new destination address in real-time.

Finally, in the next periodic update performed by the central server **450**, each content server will be updated with the new character string and corresponding destination address so that all content servers will have consistent, updated data.

However, if a match is found between the current character string of the article to be annotated **405** and the character strings in the annotation database **535**, the Intelligent Annotator™ **520** inserts an anchor code into the article to be annotated **405** to associate the matched character string with the corresponding destination address in the destination and expiration database **540**. The content server administrator input **530** may optionally have a veto power to prevent the linking of specific character strings.

The character strings in the annotation database **535** are termed "linkable character strings". Moreover, the character strings in the article to be annotated **405** are meant to designate sequences of words, letters, numbers or virtually any other visual communication token. Additionally, while the character strings of the article to be annotated **405** and the annotation database **535** generally are user-readable words and/or numbers, it will be appreciated that it is possible to encode the character strings to produce corresponding code words, and to compare the code words to determine a match. For example, some comparison algorithms may operate more efficiently using code words. However, this is consider to be essentially the same as comparing the character strings themselves, prior to coding, and the present invention is meant to encompass such a variation.

Alternatively, the Intelligent Annotator™ **520** may insert the destination address itself, e.g., a URL, rather than an anchor code as described above, into the article to be annotated. However, the use of an anchor code which references the actual destination address is preferable since this allows the destination address to be later updated without requiring additional processing of the annotated article **415**.

The use of major and/or minor classes with the annotation database **535** is optional. If no class is used, the anchor code is inserted into the article to be annotated **405** without further qualification. Optionally, the anchor code may not be inserted into the article to be annotated **405** until it is confirmed that there is a match between the current character string of the article to be annotated **405** and a linkable character string of the annotation database, and/or the destination address referenced by the anchor code has not expired. However, if a major class is selected, the matching character string of the annotation database must have the same class as the selected major class to be qualified as a match.

The major class for a particular linkable character string is preferably assigned by the central server **450** to maintain consistency among all the content servers, and to reduce the content server administrator's workload. Thus, data indicative of the major class can be stored in the master annotation database **560**. The major class can prevent inappropriate links for a character string which is used in different contexts. For example, the character string "New York" will have a different context depending on whether it is referring to the major class of tourism (e.g., New York Bureau of Tourism) or to the major class of sports (e.g., New York Yankees).

Alternatively, it is possible to have the major class assigned to the linkable character strings in the annotation database **535** by the content server administrator input **530**, or by a default setting.

Moreover, although the major class codes may not be assigned to the linkable character strings in the annotation database **535** by the content server administrator input **530**, the content server administrator input **530** is preferably used to select which major class code of matching linkable character strings is desired. For example, if the content server administrator knows that a particular article to be annotated **405** relates to business, the content server administrator should select a major class code of "100" so that matching linkable character strings with other major class codes are bypassed.

If a matching linkable character string with the selected major class code is not present in the annotation database **535**, and/or there is no corresponding destination address, the content server **410** contacts the central server **450** as discussed previously to obtain an appropriate destination address in real time from the central server **450**.

For example, assume a major class of "200" for "sports" is selected. In this case, even though the character string "IBM" has a match in the annotation database **535**, no anchor code will be provided for "IBM" since the major class (e.g., "100" for IBM) does not match, and no corresponding destination address is available. Note that, even if there is no match in the annotation database **535** for a particular character string, it is still possible to insert an anchor code which references a blank space in the destination database **540** which may subsequently be provided with an address. The anchor code may be thought of as a coordinate which identifies a space, such as a table entry, in the destination database **540**.

Furthermore, one or more minor classes can be used to control the number and type of hypertext links which are provided for the matched character string in the article to be annotated **405**. For example, if "IBM" is the matched character string, the major class (e.g., 100) matches, and minor classes "1" and "2" are selected (but not minor class "3"), then two anchor codes will be provided. One anchor code will reference a destination address in the destination and expiration database **540** for a home page (class "1"), while the other anchor code references a destination address in the destination and expiration database **540** for a stock quote page (class "2").

Generally, it is preferable for the central server **450** to assign the minor classes to the linkable character strings to maintain consistency among all of the content servers. Thus, the master annotation database **560** will maintain information regarding both the major and minor classes, if any, for each linkable character string.

The content server administrator input **530** may be used, however, to select which minor class codes are activated, thereby controlling which anchor codes are inserted into the annotated article **415**.

In the above examples where it was indicated that a content server administrator input **530** may be used, generally such input is optional as the present invention provides the capability for fully automatic insertion of hypertext link codes into the article to be annotated. All relevant settings can be determined by the central server **450**, or by default settings of the content server **410**, to minimize the work load of the content server administrator.

The destination addresses which are stored in the destination and expiration database **540** may optionally have associated expiration dates or periods. The destination addresses and expiration date data are transmitted from the central server **450** to the content server **410** and to other

content servers, not shown, intermittently on an unprompted basis, or in real-time if requested by a particular content server.

A record keeping function **545** can maintain a hit count which indicates the number of times a particular character string in the annotated article **415** is activated, e.g., by having a Web surfer click on the hypertext. This record keeping data can be intermittently downloaded to the central server **450**, e.g., for billing purposes. The record keeping data may be downloaded to the central server **450** whenever the content server **410** queries the central server **450** with an unmatched character string, or with a matched linkable character string which has an expired destination address. Alternatively, the record keeping data for a particular destination address in the destination and expiration database **540** may be downloaded to the central server **450** upon expiration of the particular destination address. Or, the record data may be downloaded to the central server on an intermittent basis, during the maintenance mode discussed previously.

It will be appreciated that it is desirable to limit the number of communications between the central server **450** and the various content servers due to limited bandwidth of the communication network.

Hit count data can be used for various purposes. For example, an increase in the hit count of a particular preferred destination address can be tracked by the central server **450** to demonstrate the effectiveness of the preferred address status.

Once the article to be annotated **405** has been processed by the Intelligent Annotator™ **520**, the annotated article with hypertext **415** is stored on the content server **410**. Additional articles may be annotated and stored on the content server for access by Web browsers. Alternatively, the article to be annotated **405** may be processed repeatedly each time it is accessed by a user, as discussed previously, but not stored in the final HTML format.

Regarding the respective databases of the content server **410** and the central server **450**, it will be appreciated that the databases may be organized in a variety of ways, and there is no requirement that each database be physically separate. For example, the annotation database and the destination and expiration database may be stored on a common memory element which is divided into separate memory spaces. Moreover, the destination address and expiration date data at both the content server and the central server need not be stored in the same memory space.

Optionally, a screening filter which is associated with the central server **450** may be provided for screening the character strings which are received from the content servers to eliminate words that may have been improperly designated, e.g., including misspelled words, or common place words such as "the" or "a" which should not be linked to.

FIG. **6** illustrates a process flow for a content server in accordance with the present invention. The desired effects of the Dynamic Decision Filter™ are produced by two distinct processes residing on different computers. Part A resides on each content server, while Part B resides on the central server. Each part of the Dynamic Decision Filter™ may be a script which is written in Practical Extraction and Reporting Language (PERL), and which is called by the HTML anchors in the files output by the Intelligent Annotator™. When called by an HTML anchor, the filter dynamically determines a destination page for the hyperlink. This portion of the Dynamic Decision Filter™ first queries the local content server's destination and expiration database. If a fresh (i.e., unexpired) destination is found, that destination is immediately transmitted to the requesting browser. If the database has no destination or a stale (expired) destination, then the script launches Part B of the Dynamic Decision Filter™ that resides on the central server. At the appropriate stage, the Part A script also updates the link hit count at the content server.

As summarized in FIG. **6**, at box **600**, articles are annotated with hypertext links as discussed previously. At box **605**, a CGI script which is Part A of the Dynamic Decision Filter™ is launched when a Web surfer clicks on the hypertext of an annotated article which is stored on a content server. As shown at box **608**, the CGI script is responsive to the destination and expiration database. At box **610**, the destination and expiration database of the content server is queried using the linkable character string of the hypertext to determine a "fresh" (unexpired) destination address.

At box **615**, if a fresh destination address is found, a hit count is updated at box **620**, and the destination address (such as a URL) is transmitted to the Web surfer's browser at box **625**.

If no fresh destination is found, at box **630**, a new destination address and expiration date are requested from the central server. At the same time, the hit count data is optionally downloaded from the content server to the central server. Box **630** is shaded to represent a link between the Part A script of the content server and the Part B script of the central server.

Note that the new destination address received from the central server may be the same as the old, expired address, but will have a new expiration date.

At box **635**, the destination and expiration database of the content server is updated, and at box **640**, the hit count is updated. At box **645**, the destination address (URL) is transmitted to the Web surfer's browser.

FIG. **7** illustrates a process flow for a central server in accordance with the present invention. Part B of the Dynamic Decision Filter™ is a PERL script residing on the central server. This script synthesizes search engine results and destination preferences into a single destination address and expiration data which is transmitted to Part A of the Dynamic Destination Filter™ at the content server. The central server assures that the chosen destination is relevant to the hyperlinked text, but will give preference to the relevant destinations of preferred provider sites. Links between the central server and the content servers are shown in gray boxes.

Expiration dates for each destination will be determined by the central server. The calculated expiration dates will optimize the tradeoff between bandwidth at the central server and dynamic control over hyperlink destinations. If a destination expires more frequently, then the content servers query the central server more often, and more bandwidth is needed.

Although content sites may produce annotated articles on a daily basis, any new links created that are based on destination addresses already stored at the content server will not require communication with the central server until the established expiration date passes.

The script on the central server also formats hit counts for billing and marketing purposes. Thus, each preferred provider can be billed accurately for the number of hits generated. Moreover, the central server can gather link hit data even for hits to non-preferred destination addresses, if desired.

As shown in FIG. **7**, at box **700**, a new destination address and expiration date are requested by a content server. At box **705**, the master destination address and expiration database

at the central server is queried using a character string received from the content server. The querying step is responsive to data in the destination address and expiration date database, as indicated at box **708**.

At box **710**, if a fresh destination address is found, a hit count is formatted for billing and marketing purposes at box **715**, and the destination address and expiration date data are transmitted to the content server at box **720**.

At box **725**, a search engine which may be external to the central server is queried using the character string received from the content server as a search term, optionally along with other search terms. At box **730**, a destination address is selected from the search engine results, and an expiration date or period is assigned to the selected destination address. The selection of a destination address is optionally responsive to destination preferences which are based on preferred provider contracts, at box **735**.

At box **740**, a hit count is formatted for billing and marketing purposes. At box **745**, the master destination address and expiration date database at the central server is updated with the destination address found in the search. Finally, at box **750**, the new destination address and expiration date data are transmitted from the central server to the particular content server which had requested the new destination address.

Note that the other content servers will be provided with the updated information according to an intermittent maintenance schedule of the central server, wherein each content server is updated with new destination addresses and linkable character strings. As previously indicated, this periodic update may be daily, weekly or monthly for example.

The hypertext of the present invention, termed Dynamic Hypertext™, provides numerous benefits relative to conventional hypertext. First, the Dynamic Hypertext™ is easier to insert and maintain than conventional hypertext. For standard HTML hyperlinks, a Web administrator first has to locate a desirable destination page and then use an HTML editor to add the hyperlinks into the page. If the destinations move, the administrator must use an HTML editor again to manually update each hyperlink. This can be a tedious process, especially for large media sites with content which changes daily.

In accordance with the present invention, the Intelligent Annotator™ and Dynamic Decision Filter™ combine to completely automate the process of inserting an updating hyperlinks. A text file is entered into the annotator, and an HTML file which is complete with hyperlinks is output. Subsequently, if destination preferences change, the new preferences can be entered at the central server, and all of the links at the various content servers will be automatically updated.

Second, Dynamic Hypertext™ can build advertising directly into HTML hyperlinks. Preferential treatment in the Dynamic Decision Filter™ can be sold much like standard Web advertising. For example, when searching for a common term such as "Intel" with a standard search engine, thousands of pages are returned. Several of these refer to the "Intel" page of various stock quote services. The Web page author desiring to link to an Intel stock quote chooses which stock quote service to use somewhat arbitrarily. With Dynamic Hypertext™, the central server can set a preference for stock quote services based on current advertising contracts such that all links from the stock quote category are automatically referred to the preferred provider.

When the contract for the current provider expires, it can be replaced by a contract with another stock quote service, and all of the links can be updated with the new preference simply by adjusting the preferences on the central server.

Third, Dynamic Hypertext™ provides advertising revenue for the central server administrator without the costs of creating and maintaining content.

Accordingly, it can be seen that the present invention provides a system for automatically providing hypertext links for character strings at a content server. A hypertext anchor code may be inserted into the text file itself, thereby forming a new markup language file, or an anchor code may be associated with the character strings of the text file using relational database programming techniques or any other known programming technique. Additionally, a central server provides central control of the links of text files of a plurality of content servers in an information network such as the Internet. The central server intermittently updates each content server with new character strings and/or destination addresses, and also receives new character strings from the content server. This may be done automatically on an off-line basis, e.g., without requiring input from the content server administrators.

However, if desired, each content server can query the central server on a real-time basis (e.g., as a file is being annotated) to obtain a destination address for a character string which has no valid corresponding destination address at the content server.

The central server responds to such queries by searching its master databases, and using a search engine if required, to obtain a destination address.

Hit count data is maintained at the content servers and transmitted to the central server intermittently. For example, the hit count data may be transmitted from a particular content server to the central server when the central server is being queried by that particular content server for other reasons, e.g., to obtain an updated destination address, or during a maintenance mode.

Conventional techniques and hardware which will be apparent to those skilled in the art may be used for communicating data between, and within, the content server and the central server. Moreover, the invention may be adapted for use with various software programming systems. For example, while the use of CGI scripts has been mentioned in an example embodiment, other programming tools may be used.

Additionally, while the invention has been described for use in connection with the Internet, the invention may be adapted or use with virtually any computer network, including intranets, local area networks, and wide area networks.

Although the invention has been described in connection with various specific embodiments, those skilled in the art will appreciate that numerous adaptations and modifications may be made thereto without departing from the spirit and scope of the invention as set forth in the claims.

The scope of the invention is indicated by the appended claims, and not the foregoing description. All changes which come within the meaning and range of equivalency of the claims are to be embraced within their scope.

What is claimed is:

1. A computer system for providing hypertext links for a plurality of character strings including a first character string, said computer system comprising:

an annotation database associated with a primary computer which comprises a plurality of linkable character strings;

a destination database associated with said primary computer which comprises a plurality of destination addresses;

determining means associated with said primary computer for determining a matching linkable character

string for said first character string, if present, in said annotation database;

wherein said matching linkable character string is associated with at least one of said destination addresses

wherein said annotation database further comprises a plurality of class codes which are associated with said plurality of linkable character strings;

the matching linkable character string has a plurality of class codes associated therewith;

said destination database comprises a plurality of destination addresses corresponding to said plurality of class codes of the matching linkable character string;

querying means associated with said primary computer which queries said destination database to obtain the plurality of destination addresses corresponding to the associated plurality of class codes; and

means associated with said primary computer for providing a plurality of anchor codes which relate said matching linkable character string to said corresponding plurality of destination addresses to provide a corresponding plurality of hypertext links for said first character string.

2. The computer system of claim **1**, further comprising:

writing means associated with said primary computer for writing a plurality of character strings into a primary computer file in which said first character string is carried to identify the corresponding plurality of hypertext links for said first character string.

3. A computer system for providing hypertext links for a plurality of character strings including a first character string said computer system comprising:

an annotation database associated with a primary computer which comprises a plurality of linkable character strings;

a destination database associated with said primary computer which comprises a plurality of destination addresses;

determining means associated with said primary computer for determining a matching linkable character string for said first character string, if present, in said annotation database;

wherein said matching linkable character string is associated with at least one of said destination addresses;

wherein at least some of said linkable character strings in said annotation database have an associated major class code, further comprising:

qualifying means associated with said annotation database for qualifying the matching linkable character string according to qualification criteria which requires the major class code of the matching linkable character string to match a preferred major class code.

4. The computer system of claim **3**, further comprising:

interface means associated with said primary computer for receiving an administrator input which designates said preferred major class code.

5. The computer system of claim **3**, further comprising:

receiving means for receiving a signal indicative of said preferred major class code from a central computer via a communication network.

6. A computer system including a central computer adapted to communicate with a plurality of primary computers via a communication network, said computer system comprising:

defining means associated with said central computer for defining a plurality of linkable character strings;

an annotation database associated with said central computer for storing said plurality of linkable characters strings;

assigning means associated with said central computer for assigning at least one corresponding destination address to each of said linkable character strings;

a destination database associated with said central computer for storing the assigned destination addresses;

transmitting means associated with said central computer for transmitting specific ones of said plurality of linkable character strings and specific ones of said destination addresses to said plurality of primary computers via said communication network in an intermittent maintenance mode;

said assigning means is adapted to communicate with a search engine for searching an information network using particular ones of said linkable character strings as search terms to obtain particular ones of said corresponding destination addresses; and

a destination filter associated with said assigning means for filtering destination addresses obtained from said search engine according to preference criteria to obtain said destination addresses which are assigned to said linkable character strings.

7. A method for providing hypertext links for a plurality of character strings including a first character string, said method comprising the steps of:

providing an annotation database associated with a primary computer which comprises a plurality of linkable character strings;

providing a destination database associated with said primary computer which comprises a plurality of destination addresses;

determining a matching linkable character string for said first character string, if present, in said annotation database;

wherein said matching linkable character string is associated with at least one of said destination addresses;

wherein said annotation database further comprises a plurality of class codes which are associated with said plurality of linkable character strings;

the matching linkable character string has a plurality of class codes associated therewith; and

said destination database comprises a plurality of destination addresses corresponding to said plurality of class codes of the matching linkable character string;

said method comprising the further steps of:

querying said destination database to obtain the plurality of destination addresses corresponding to the associated plurality of class codes; and

providing a plurality of anchor codes which relate said matching linkable character string to said corresponding plurality of destination addresses to provide a corresponding plurality of hypertext links for said first character string.

8. The method of claim **7**, comprising the further step of:

writing a plurality of character strings into a primary computer file in which said first character string is carried to identify the corresponding plurality of hypertext links for said first character string.

9. A computer system including a central computer adapted to communicate with a plurality of primary computers via a communication network, said computer system comprising:

defining means associated with said central computer for defining a plurality of linkable character strings;

an annotation database associated with said central computer for storing said plurality of linkable character strings;

assigning means associated with said central computer for assigning at least one corresponding destination address to each of said linkable character strings;

a destination database associated with said central computer for storing the assigned destination addresses;

transmitting means associated with said central computer for transmitting specific ones of said plurality of linkable character strings and specific ones of said destination addresses to said plurality of primary computers via said communication network in an intermittent maintenance mode;

receiving means associated with said central computer for receiving hit count data from said primary computers via said communication network;

wherein each of said linkable character strings in said annotation database has an associated major class code, comprising the further steps of:

qualifying the matching linkable character string according to qualification criteria which requires the major class code of the matching linkable character string to match a preferred major class code.

10. The method of claim 9, comprising the further steps of:

receiving an administrator input which designates said preferred major class code.

11. The method of claim 9, comprising the further step of:

receiving a signal indicative of said preferred major class code from a central computer via a communication network.

12. A method of communicating with a plurality of primary computers via a communication network, said method comprising the steps of:

defining a plurality of linkable character strings at a central computer;

storing said plurality of linkable characters strings in an annotation database associated with said central computer;

assigning at least one corresponding destination address to each of said linkable character strings;

storing the assigned destination addresses at a destination database associated with said central computer;

transmitting specific ones of said plurality of linkable character strings and specific ones of said destination addresses to said plurality of primary computers via said communication network in an intermittent maintenance mode;

communicating with a search engine for searching an information network using particular ones of said linkable character strings as search terms to obtain particular ones of said corresponding destination addresses; and

filtering destination addresses obtained from said search engine according to preference criteria to obtain said destination addresses which are assigned to said linkable character strings.

* * * * *

CERTIFICATE OF SERVICE

I, Michael R. Casey, being duly sworn according to law and being over the age of 18, upon my oath depose and say that:

On **February 18, 2015** I electronically filed the foregoing **Opening Brief for Appellant** with the Clerk of Court using the CM/ECF System, which will serve via e-mail notice of such filing to all counsel registered as CM/ECF users, including any of the following:

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I will cause paper copies to be mailed to the above counsel at the time paper copies are sent to the Court.

Upon acceptance by the Court of the e-filed document, six paper copies will be filed with the Court within the time provided in the Court's rules.

February 18, 2015

/s/ Michael R. Casey
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CERTIFICATE OF COMPLIANCE

This brief complies with the type-volume limitation of Federal Rule of Appellate Procedure 32(a)(7)(B) as the brief contains 7,213 words, excluding the parts of the brief exempted by Federal Rule of Appellate Procedure 32(a)(7)(B)(iii). This brief complies with the typeface requirements of Federal Rule of Appellate Procedure 32(a)(5) and the type style requirements of Federal Rule of Appellate Procedure 32(a)(6). This brief has been prepared in a proportionally spaced typeface using MS Word 2013 in a 14 point Times New Roman font.

Dated: February 18, 2015

Respectfully submitted,

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